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ABSTRACT

A sample of slightly over 1500 students from even numbered grades in public schools in the U.S. Virgin Islands were given the 1973 edition of the Stanford Achievement Test (in grades 2, 4, 6, and 8) and the Test of Academic Skills (in grades 10 and 12) in an attempt to assess student academic achievement in the basic skill areas of mathematics, reading, and English Language. Technical Report 1 detailed the procedures used in test selection, sampling, and test administration. Technical Report 2 reported the results of the analysis of scores for secondary students (grades 8, 10, and 12) including an item analysis and summary skills on all objectives. This report describes Phase III of the data analysis which involves a detailed item analysis of each item on each test given to the sample of students in grades 2, 4, and 6 as well as a summary of student skills based on their achievement along objectives provided by the test publisher and keyed to individual test items. Measures of item difficulty and item discrimination were calculated for the entire territorial school system and for the individual school districts. (Author/PN)

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Virgin Islands of the United States Public School Basic Skills Achievement Survey

Technical Report #3: Item Analysis and Report of Student Skills of Elementary School Students

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Abstract

A sample of slightly over 1500 students from even numbered grades in public schools of the U.S. Virgin Islands were given the 1973 edition of the Stanford Achievement Test (in grades 2, 4, 6, and 8) and the Test of Academic Skills (grades 10 an 12) in an attempt to assess student academic achievement in the basic skill areas of mathematics, reading, and English Language. This report describes Phase III of the data analysis which involved a detailed item analysis of each item on each test given to the sample of students in grades 2, 4, and 6 as well as a summary of student skills based on their achievement along objectives provided by the test publisher and keyed to individual test items. Measures of item difficulty and item discrimination were calculated for the entire territorial school system and for the individual school districts.

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At the request of the U. S. Virgin Islands Department of Education and the Board of Trustees of the College of the Virgin Islands, the Caribbean Research Institute embarked on a study of basic skills achievement in U. S. Virgin Islands public schools. It soon became clear that any strategy designed to improve basic skills achievement needed to start off with a fairly detailed description of current achievement levels of students in territorial public schools. It was found that this was not available.

The task force set up to design the study decided that the most efficient way to obtain information on levels of basic skills achievement was to administer a standardized achievement test to a representative sample of students and to analyze the results of this test. Technical Report #1 (Bliss, 1982a) describes, in detail, the process used to choose an appropriate test. Finally, the Stanford Achievement Test (1973 version) was chosen as the instrument of choice. Briefly, the reasons for choosing this achievement test battery were that 1) it covered the grades K-12, 2) it seemed, on initial observation, to be a good match with subject content taught in the schools, 3) it was technically sound given the population on which it was standardized (a seemingly representative sample of mainland U. S. students), and 4) it would report out criterion referenced results.

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Due to various organizational and fiscal contraints, only students in even numbered grades were tested. This seemed acceptable since many of the objectives tested by the Stanford Achievement Test carry across adjacent levels of the test and there was no reason to suspect that the patterns of academic achievement of students in odd numbered grades were different from those in even numbered grades. These constraints are detailed in Technical Report #1.

Sampling of students to be tested was done using a cluster sampling technique with classes as the cluster unit. The details of the sampling procedure can be found in Technical Report #1 along with a discussion of the effects of using this sampling technique on the information obtained. Table 1 presents a breakdown of the sample as it finally emerged.

Table 1

U. S. Virgin Islands Sample Sizes

Grade	Test Level	Total System	St. Thomas St. John District	St. Croix District
12	Task II	129	74	55
10	Task I	254	167	87
8	Advanced	345	173	172
6	Intermediate II	227	146	81
4	Primary III	346	186	160
2	Primary I	234	143	91
	Total	1535	889	646

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Testing was done at the grade level recommended by the test publisher during the week of October 21, 1980 in the St. Thomas/St. John district and during the week of December 1, 1980 in the St. Croix district. Testing materials and completed answer sheets were collected, answer sheets checked to determine compliance with marking instructions, and answer sheets sent off to be machine recorded.

Background - Technical Report #3

This is the second of four reports that will deal with the results of the basic skills assessment described above. Technical Report #1 detailed the procedures used in test selection, sampling, and test administration. More importantly, it established empirically, the content validity and the reliability of the Stanford Achievement test when it was administered to a sample of U. S. Virgin Islands public school students. This is particularly important since there exists no standardized test of academic achievement which includes USVI students in its standardization group.

Technical Report #2 (Bliss, 1982b) reported the results of the analysis of scores for secondary students (grade 8, 10, and 12) including an item analysis and summary skills on all objectives.

This report examines the scores of elementary school students (grades 2, 4, and 6) and presents:

1) an item analysis of each item on each test of the battery which includes indices of item difficulty and discrimination and

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2) a summary of student skills based on their scores on the items keyed to specific objectives.

Item Analysis

Difficulty indices

The difficulty index of an item is found by taking the number of examinees scoring correctly on an item and dividing it by the total number of students taking the test. In short, it is the proportion of examinees who scored correctly on an item and has a range from 0 (no students scoring correctly) to 1 (all studetns scoring correctly). Because of the fact it is a proportion, it is often designated in the literature as "p" (e.g. p = .75). It may be worthwhile to point out that the term "difficulty index" may be somewhat of a misnomer since items with high difficulty indices are actually less difficult than items with low difficulty indices. Nevertheless, the term and its definition have become standard in the area of psychometrics throughout the United States.

Difficulty indices for each item on each test were reported out by the test scoring service. In addition, difficulty indices for examinees in the standardization group in the same grade as local examinees at approximately the same time of year are reported. The test scoring service used a Chi-squared test for proportions of each difficulty index to test the hypotheses that the proportions of local students scoring correctly on individual items in

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greater or less than the proportions of examinees in the standardization group scoring correctly at the .05 level of significance. Significant differences in either direction were reported out.

Discrimination Indices

The item discrimination index indicated the degree to which responses on one item are related to responses on other items on the test. The statistic indicates whether a person who does well on the test as a whole (that is, a person who is presumably high on the trait being measured) is more likely to get the particular item correct than a person who does poorly on the test as a whole. In other words, the item discrimination index indicates whether an item discriminates between those who do well and those who do poorly on the test as a whole. Taking the item difficulty and the item discrimination index into consideration, the developers of tests desire to construct tests which discriminates well among examinees with varying levels of a trait.

The item discrimination index is calculated by the formula

$$d = \frac{U - L}{N}$$

where

U = the number of examinees who have total test scores in the upper range of total test scores and who also have the item correct.

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L = the number of examinees who have total test scores in the lower range of total test scores and who also have the item correct.

N = the number of examinees in the upper or low range of the test scores.

By definition, d is the difference between the proportion of high scoring examinees who got the item correct and the proportion of low scoring examinees who got the item correct. Upper and lower ranges generally are defined as the upper and lower 10% to 33% of the sample, with examinees ordered on the basis of their total test score. When total scores are normally distributed using the upper and lower 27% produces the best estimate of d (Kelly, 1939). If the distribution of total test scores is flatter than the normal curve, the optimum percentage is larger and approaches 33% (Cureton, 1957). However, Allen and Yen (1979) found that, for most applications, any percentage between 25 and 33 will yield similar estimates of d. In this study, 27% was used as the upper and lower percentage because examination of selected distributions of actual test scores revealed nearly normal distributions.

The theoretical range of d is between -1 and +1. However, maximum discrimination is likely to occur when p = .50. When p = .50 the variance in item scores, which is p (1 - p), is maximized. As an item becomes more difficult, it is less likely that <u>any</u> student will score correctly on it. As it becomes less difficult it is more likely that <u>any</u> student

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will get it correct. This could lead to the suggestion that all items should have p = .50, but the usefulness of this suggestion is mitigated by intercorrelation among items. In an extreme case, if the items on a test all intercorrelated perfectly and had difficulties of .50, half the examinees would receive a total test grade of zero and the other half would have perfect test scores. Hence, there would be no fine discrimination between examinees' levels of achievement or whatever trait was being measured. In general, test designers tend to try to choose items with a range of difficulties that average around .50. Items of particularly low difficulty are often included in tests (usually among the earlier items) for motivational reasons.

Item discrimination indices were calculated in this study to provide indications that items may be flawed when used with USVI students. Such flaws are ambiguity, the presence of clues, the presence of more than one correct answer, and other technical defects. If none was found upon examination of the item, and it was determined that the item did, indeed, appear to measure the objective it was intended to, the item was included in the overall analysis of results. Any item that discriminates positively can make a contribution to the measurement of pupil achievement and low indices of discrimination are frequently obtained for reasons other than item defects.

Standardized achievement tests are designed to measure several different types of learning outcomes (e.g. knowledge,

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understanding, application, etc.). Where this is the case, test items that represent an area receiving relatively little emphasis will tend to have poor discriminating power. For example, if a test has forty items measuring knowledge of specific facts and ten items measuring understanding, the latter items can be expected to have low discrimination indices. This is because the items measuring understanding have less representation in the total test score and there is typically a low correlation between measures of knowledge and measures of understanding. Low discrimination indices here merely indicate that these items are measuring something different from what the major part of the test is measuring. Removing such items from the test would make it a more homogeneous measure of knowledge outcomes, but it would also damage the content validity of the test because it would no longer measure objectives in the understanding area. Since achievement test batteries need to measure a wide variety of objectives in a reasonably short period of time, they tend to be fairly heterogeneous in nature and moderately low discrimination indices tend to be the rule rather than the exception.

To summarize, a low discrimination index alerts test users to the possible presence of defects in test items but does not cause them to discard these items if they appear to be functioning as they should. A well constructed achievement test will of necessity, contain items with low discriminating power and to discard them would result in a test

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which is less, rather than more, valid. Due to these considerations, in this study items were examined if they had discrimination indices lower than .20. This is a rather conservative criterion since items that discriminate as low as this may provide useful information, but given the unknown test taking characteristics of USVI students, it was decided to be particularly cautious in the item analysis.

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Summary of Student Skills

The items of the tests of the various levels of the Stanford Achievement Test battery were keyed to behaviorally stated instructional objectives. These objectives are grouped into a series of item groups. Tables are available which present objectives within item groups and the difficulty and discrimination indices for the item or items which evaluate those objectives. These may be obtained from the Caribbean Research Institute. In addition, the difficulty index for each item for the examinees in the standardization group is available. This standardization group consists of examinees who were in the same grade at approximately the same time during the school year as the U. S. Virgin Islands sample.

The national p values are used not as a means to compare U. S. Virgin Islands students with mainland U. S. examinees. Historical and cultural differences between these two groups of examinees makes this comparison an inappropriate one. Philosophical considerations aside, however, such comparisons are of little use to the people who make curricular decisions in schools. What these people need to know are the particular levels of skills of students as measured against well defined objectives, not how well their students achieved these skills as compared to other students.

Nevertheless, since the skills and knowledges taught in schools are seldom taught once, but are dealt with at a number of grade levels where they are reinforced and broadened,

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the level of achievement on specific objectives should be expected to change from grade to grade for a particular student or group of students. The publishers of the Stanford Achievement Test take this factor into consideration by testing particular objectives across a number of levels (grades) of the test. In this study the national p values are used to indicate the relative level of difficulty of an item by which the performance of the local sample may be judged. For instance, it would be foolish to be dissatisfied if 20% of the USVI students have indicated that they have reached an objective when only 18% of comparable students in the standization group had reached that same objective. What is more likely the case is that this is a difficult and complex objective that had just been taught recently and would be retaught and enlarged upon at a later time.

Therefore, the following criteria were used in summarizing student skills. Skills are described as "adequate" if the proportions of local examinees scoring correctly on items measuring those skills are not significantly higher or lower than the proportions of the standardization group scoring correctly or, if significantly higher or lower, the proportions correct are within 10% of the standardization proportion correct as reported by the test scoring [illegible]. Skills are described as "strong" if the proportions [illegible]nees scoring correctly on items measuring those [illegible] significantly higher and more than 10% greater

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than the standardization group proportion correct as reported by the test scoring service. Skills are described as "weak" if the proportion of local examinees scoring correctly on items measuring those skills are significantly lower and more than 10% less than the standardization group proportion correct. The 10% standard was set in the realization that some differences, while statistically significant may be educationally trivial and it was noted that most differences indicated as significant exceeded 10%.

Finally, in cases where the scores of examinees from both the St. Thomas/St. John and the St. Croix districts were the same based on the criteria stated above summaries were based on the entire USVI sample. Where differences were noted, the skills of examinees within each district were summarized separately.

Availability of Data

Tables listing each objective on every test keyed to test items with national difficulty indices, difficulty indices for the entire USVI sample and the individual district subsamples as well as item discrimination indices for the whole sample and each subsample are available and may be obtained from the Caribbean Research Institute, College of the Virgin Islands.

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Grade 2 - Primary I Level

The Primary I Level of the Stanford Achievement Test consists of seven tests with the number of items listed below:

1. Vocabulary - 37 items
2. Reading Comprehension (Part A) - 45 items
3. Reading Comprehension (Part B) - 42 items
4. Word Study Skills - 60 items
5. Mathematics Concepts - 32 items
6. Mathematics Computation - 32 items
7. Listening Comprehension - 26 items

The means, standard deviations, and reliability estimates for these tests, determined previously (see Bliss, 1982a), are presented below:

Test	Mean Raw Score	Standard Deviation	KR-20 Reliability	Standard Error
		Total USVI Sample		
Vocabulary	21.7	5.1	.72	2.6
Reading Comprehension (Part A)	34.1	13.8	.98	1.95
Reading Comprehension (Part B)	29.5	8.9	.92	2.53
Word Study Skills	47.5	9.4	.92	2.65
Mathematics Concepts	19.0	4.4	.71	2.38
Mathematics Computation	21.5	5.0	.81	2.71
Listening Comprehension	16.8	4.3	.74	2.22

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		St. Thomas/St. John Sample		
Vocabulary	21.7	4.8	.71	2.57
Reading Comprehension (Part A)	36.3	15.2	.99	1.52
Reading Comprehension (Part B)	30.7	8.4	.91	2.52
Word Study Skills	48.7	8.7	.91	2.62
Mathematics Concepts	19.7	4.3	.69	2.38
Mathematics Comprehension	22.0	4.6	.78	2.15
Listening Comprehension	17.9	4.0	.70	2.17
		St. Croix Sample		
Vocabulary	20.1	5.1	.71	2.72
Reading Comprehension (Part A)	30.5	10.3	.94	2.51
Reading Comprehension (Part B)	27.6	9.5	.92	2.68
Word Study Skills	45.6	10.1	.93	2.68
Mathematics Comprehension	18.7	5.6	.75	2.37
Mathematics Computation	20.7	5.4	.83	2.21
Listening Comprehension	15.2	4.4	.72	2.34

Following are the item analyses and summaries of student achievement on the objectives evaluated by each of the tests.

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Vocabulary

Item Analysis

All items showed acceptable discrimination indices with the following exceptions:

Item #1 was particularly easy for students in the USVI sample (p = .94). This accounts for the low level of discrimination by this item and is not significantly different from the standardization group value of p = .91.

Item #2 was particularly easy for examinees in the St. Thomas/ St. John group in all classes tested (p = .99). This would account for the low level of discrimination level observed (d = .05).

Item #3 and #4 were very easy for the examinees in the St. Thomas/St. John sample (p = .93 and .90, respectively. This accounts for the low levels of the observed difficulty indices.

Item #8 was a moderately difficult item for USVI examinees (p = .66). The teacher asked, "If a place is not safe, it is _____." The alternatives were, 1) accidental, 2) secure, and 3) dangerous. Many students who scored in the upper 27% of the examinees on this test chose "accidental" while the incorrect choices were more evenly spread between the two distractors for those in the lower 27%. There is some factor operating that draws higher achieving students to Choice #1, but an inspection of the item, itself fails to reveal this factor.

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Item #9 was an easy one for St. Thomas/St. John school district examinees (p = .87). This accounts for the low level of discrimination that was observed (d = .13).

Item #20 discriminated negatively for St. Croix district examinees (d = -.12). This moderately difficult item (p = .31) had the teacher ask "A small man is a _____." The alternatives were 1) boy, 2) girl, and 3) woman. Most examinees chose "woman" as the correct choice and, in the case of St. Croix students this was true of slightly more of the upper 27% of students than of the lower 27%. There may be a cultural influence in the way language is used in the Virgin Islands which accounts for this.

Item #32 did not discriminate between higher and lower achieving students in th St. Croix school district (d = 0). This was a difficult item for these examinees (p = .23) and this very likely accounts for the lack of discrimination observed.

Item #27 showed low discrimination for St. Croix school district examinees (d = .16). This was a moderately difficult item (p = .47) and it appeared more difficult for these students than for the St. Thomas/St. John district examinees (p = .54). On the surface, the problem seems to be that a lower proportion of the upper 27% of examinees in St. Croix than in the St. Thomas/St. John district scored correctly on this item (25% vs 82%) and a higher proportion of the lower 27% of the St. Croix district examinees than of

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the St. Thomas/St. John examinees scored correctly on it (20% vs 48%). USVI examinees in both districts did as well on this item as the standardization group (p = .49) and there appeared to be no consistent pattern of incorrect reponses. The reason for this low level of discrimination is not evident from the information available. The same phenomenon is evident on Item #28.

Item #33 discriminated poorly for St. Croix district examinees (d = -.04). The same phenomenon observed in Items 27 and 28 was observed.

Summary of Student Skills

USVI examinees from both school districts showed weak skills in standard English vocabulary which was made of words generally encountered in reading oral language and listening. The average difficulty indices for the St. Thomas/St. John district, the St. Croix district, and the standardization group of students were .57, .51 and .68, respectively with St. Thomas/St. John district students scoring indices significantly below those of the standardization group on seven of the 13 items and St. Croix students scoring lower on 11 of the 13 items.

St. Thomas/St. John school district examinees scored adequately compared to the standardization group on recognition of words from nonfiction and reference sources (mean p = .69 vs .72) while St. Croix district examinees showed weak vocabulary skills in this area (mean p = .57).

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St. Thomas/St. John school district examinees scored adequately on recognition of vocabulary found in the areas of mathematics and science (mean p = .64 vs .69 for the standardization group) while St. Croix district examinees showed weak vocabulary skills in this area (mean p = .57).

USVI examinees both school districts demonstrated adequate skills on recognition of vocabulary found in the area of the social sciences (mean = .60 for the St. Thomas/St. John district, mean p = .56 for the St. Croix district examinees, and p = .61 for the standardization group).

Reading Comprehension (Part I)

Item Analysis

All items on this test discriminated satisfactorily for St. Croix school district examinees. The following items showed poor discrimination for St. Thomas/St. John district students:

Items #1 and #2 were very easy for these examinees (p = .99 and .93, respectively). Since most examinees scored correctly on these items, it was almost as likely for a student in the lower 27% of the group to score correctly as it was for a student in the upper 27% of the group. This would account for the low discrimination indices (d = .05 and d = .18, respectively) observed for these items.

Items #4 and #7 were very easy items for the St. Thomas/St. John school district sample of students (p = .95 and p = .96, respectively) and this would account for the low

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levels of discrimination that was observed on these items ($d = .15$ and $d = .13$).

Items #10 and #13 were very easy for this group of examinees ($p = .98$ and $p = .95$, respectively) accounting for the low discrimination indices which were observed ($d = .08$ and $d = .13$).

Items #16 and #19 were also very easy for this group of second graders from the St. Thomas/St. John school district ($p = .95$ for both items), explaining the low levels of observed discrimination ($d = .15$ for both items).

Summary of Student Skills

USVI examinees from both the St. Thomas/St. John and the St. Croix school districts displayed adequate skills on the test which evaluated their ability to match words which appear in reading materials for primary grades and in general listening vocabulary with illustrations. The mean difficulty indices for the St. Thomas/St. John school district examinees, the St. Croix district examinees, and the standardization group were .78, .68, and .72, respectively. St. Thomas/St. John examinees scored as well or better than the standardization group examinees on all items. St. Croix examinees scored significantly lower on 15 of the 45 items on this test than did the standardization group, and did not score significantly higher on any of them.

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Reading Comprehension (Part II)

Item Analysis

All items on this test discriminated satisfactorily except the following:

Item #1 was very easy for the St. Croix school district sample of examinees (p = .93). This would account for the low level of discrimination (d = .16) which was observed for this question.

Item #2 and #3 were very easy for the examinees in the St. Thomas/St. John school district (p = .99 and .95, respectively). This would account for the low levels of discrimination observed for these items.

Item #16 was a moderately easy (p = .70) item that did not discriminate satisfactorily among St. Croix examinees (d= .12). The item presented a picture of a little girl lifting a doll out of a gift box. The item read, "Dad gave Sally a surprise on her birthday. It was in a _____." The alternatives were 1) box, 2) car, 3) toy. Ninety percent of the upper 27% of the St. Thomas/St. John examinees scored correctly on this item compared to only 76% of the upper 27% of examinees in the St. Croix sample. Most of the upper group students in St. Croix sample chose alternative #2 giving the impression that they may have been reading beyond what was actually presented since on St. Croix, a gift would almost certainly be brought home by automobile. Even though the directions explicitly reminded examinees to look at the pictures in answering the questions, high scoring examinees found the distractor "car" attractive.

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Reading Comprehension (Part II)

Item Analysis

All items on this test discriminated satisfactorily except the following:

Item #1 was very easy for the St. Croix school district sample of examinees (p = .93). This would account for the low level of discrimination (d = .16) which was observed for this question.

Item #2 and #3 were very easy for the examinees in the St. Thomas/St. John school district (p = .99 and .95, respectively). This would account for the low levels of discrimination observed for these items.

Item #16 was a moderately easy (p = .70) item that did not discriminate satisfactorily among St. Croix examinees (d= .12). The item presented a picture of a little girl lifting a doll out of a gift box. The item read, "Dad gave Sally a surprise on her birthday. It was in a _____." The alternatives were 1) box, 2) car, 3) toy. Ninety percent of the upper 27% of the St. Thomas/St. John examinees scored correctly on this item compared to only 76% of the upper 27% of examinees in the St. Croix sample. Most of the upper group students in St. Croix sample chose alternative #2 giving the impression that they may have been reading beyond what was actually presented since on St. Croix, a gift would almost certainly be brought home by automobile. Even though the directions explicitly reminded examinees to look at the pictures in answering the questions, high scoring examinees found the distractor "car" attractive.

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Item #37 was a moderately easy (p = .67) item that discriminated poorly (d= .12) among St. Croix school district examinees. The item presented a picture of a little boy and a woman, both in bathing attire sitting on the ground with water behind them. The boy is building a sand castle. The item reads, "then he went swimming in the ocean while his mother sat in the _____." The alternatives were 1) shed, 2) sun, 3) summer. All of the upper 27% of the St. Thomas/ St. John examinees scored correctly on this item while of 76% of the St. Croix examinees scored correctly. On the other hand, only 46% of the lower 27% of St. Thomas/St. John examinees vs 64% of the lower 27% of the St. Croix examinees scored this item correctly. There was no pattern of distractors chosen by students scoring incorrectly in either the high or the low group and the overall discrimination indices were virtually identical (p = .66 on St. Thomas/St. John and p = .67 on St. Croix). For some reason, this item correlated poorly with other items on the test for St. Croix examinees, but the reason for this is not apparent from the information that is available.

Summary of Student Skills

The problem encountered at higher grade levels where examinees did not seem to attempt items coming up later in the reading comprehension test (Bliss,1982b) did not arise at this grade level. There were 42 items on this test compared to as many as 71 on the reading comprehension test on Intermediate Level II (grade 6). In addition,

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none of these items were of the form where examinees were required to read a passage of text before answering questions. This further supports the speculation that either USVI examinees tire quickly when asked to perform on items where they must read longer passages, or that they are more deliberate readers who take a longer period of time to read these passages. On this level, only 7% of examinees omitted the last item on the test.

USVI examinees from both school districts showed adequate achievement in determining meaning that is explicitly stated in a sentence or short paragraphs. St. Thomas/St. John district and St. Croix district examinees answered these items with a mean proportion correct of .74 and .65, respectively, compared to a mean p = .69 for the standardization group.

Local examinees showed adequate achievement in determining meaning that is stated implicity in a sentence or short paragraph. St. Thomas/St. John district and St. Croix district examinees answered items testing this skill with a mean proportion correct of .72 and .65, respectively, compared to a mean p = .71 for the standardization sample.

Word Study Skills

Item Analysis

Most items on the word study skills test discriminated satisfactorily for students in the USVI sample. In each case where an item showed poor discrimination it appeared to be due to a high difficulty index (i.e. examinees found the

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item very easy to answer correctly). These items and the discrimination indices (d) and difficulty indices (p) are listed below. For examinees in both the St. Thomas/St. John and St. Croix districts (d and p are for the combined responses from both districts):

Item#	d	p
1	.06	.90
2	.13	.97
3	.16	.95
5	.02	.99
26	.11	.97

For examinees in the St. Thomas/St. Croix district, only:

Item#	d	p
4	.13	.97
8	.08	.89
10	.03	.97
11	.18	.94
13	.18	.92
20	.08	.97
24	.08	.97
25	.18	.94
33	.08	.97
38	.15	.94
53	.05	.97

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Summary of Student Skills

Consonant sounds - USVI examinees from both the St. Thomas/St. John and the St. Croix school districts showed adequate skills in all areas of discriminating among graphemes for consonant sounds that were measured by this test. These sounds were:

a) the initial consonant sound /k/

b) the initial consonant sound /d/

c) the initial consonant sound /p/

d) the initial consonant sound /r/

e) the initial consonant sound /j/

f) the final consonant sound /t/

g) the final consonant sound /l/

h) the final consonant sound /d/

i) the final consonant sound /k/

Consonant clusters - St. Croix school district showed weak skill in their ability to discriminate among graphemes for the constant cluster of an initial consonant plus r (gr). St. Thomas/St. John district examinees showed adequate achievement in this skill.

USVI examinees from both school districts demonstrated adequate achievement on all other items on this test which measured their abilities to discriminate among graphemes for consonant clusters. These clusters included consonant clusters of:

a) an initial consonant plus r (tr)

b) an initial s plus a consonant (sp)

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c) an initial s plus a consonant (sk)

d) an initial consonant plus l (cl)

e) a final consonant plus t (nt)

f) a final n plus a consonant (ns)

g) a final n plus a consonant (ns)

h) a final consonant plus d (nd)

i) a final consonant plus k (lk)

Consonant degraphs - USVI examinees from both the St. Thomas/St. John and the St. Croix school districts showed adequate skills in discriminating between consonant degraphs on all items of this test which measured this skill. These consonant degraphs included:

a) /sh/ in the initial position

b) /ch/ in the initial position

c) /th/ in the initial position

d) /hw/ in the initial position

e) /ng/ in the final position

Vowel sounds - USVI examinees from both school districts demonstrated exceptionally strong skill in discriminating among graphemes for the short vowel sound /e/ spelled e.

St. Thomas/St. John school district examinees showed strong skills in discriminating among graphemes for the following vowel sounds:

a) the long vowel sound /o/ spelled o-e

b) the long vowel sound /yoo/ spelled u-e

c) the long vowel sound /e/ spelled by the diagraph ee

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St. Croix school district examinees displayed adequate achievement in these skills.

St. Croix examinees displayed weak skills in the ability to discriminate among graphemes for the long vowel sound /e/ spelled ea. St. Thomas/St. John district students showed adequate achievement in this skill.

USVI examinees from both school districts showed adequate ability to discriminate among graphemes for the following vowel sounds. The:

a) short vowel sound /a/ spelled a

b) short vowel sound /i/ spelled i

c) short vowel sound /o/ spelled o

d) short vowel sound /u/ spelled u

e) long vowel sound /a/ spelled a-e

f) long vowel sound /i/ spelled i-e

g) long vowel sound /a/ spelled by the diagraph ai

h) long vowel sound /a/ spelled by the diagraph ay

i) long vowel sound /oo/ spelled by the diagraph oo

j) long vowel sound /o/ spelled by the diagraph oa

k) long vowel sound /o/ spelled by the diagraph ow

<u>vowel plus r combinations</u> - USVI examinees from both school districts showed weak skill in the ability to discimi- among graphemes for the vowel plus r combination /ur/ spelled.

St. Thomas/St. John school district examinees showed weak ability in discriminating among graphemes for the following vowel plus r combinations:

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a) /ur/spelled er

b) /or/ spelled or

St. Croix district examinees showed adequate achievement in these two skills.

Examinees in both school districts displayed adequate skills in discriminating among graphemes for the following vowel plus r combinations:

a) /er/ spelled er

b) /ar/ spelled ar

c) /ur/ spelled ir

d) /ur/ spelled ur

Silent consonant letters - USVI examinees from both the St. Thomas/St. John and the St. Croix school districts displayed adequate skills in discriminating among graphemes for the:

a) hn spelling of /n/

b) wr spelling of /r/

c) ght spelling of /t/

St. Croix school district examinees showed weak skills in discriminating among graphemes for the :

a) lk spelling of /k/

b) mb spelling of /m/

St. Thomas/St. John examinees showed adequate achievement in these skills.

Diphthongs - St. Thomas/St. John school district examinees showed strong skills in their ability to discriminate among graphemes for the diphthong /ou/ spelled ow.

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St. Croix district examinees showed adequate skills in this area.

USVI examinees from both school districts displayed adequate achievement in discriminating among graphemes for the following diphthongs:

a) /ou/ spelled ou

b) /oi/ spelled oi

c) /oi/ spelled oy

Mathematics Concepts

Item Analysis

Item #1 and #2 were very easy for USVI examinees from both school districts (p = .97 for the two items) and this would account for the low discrimination indices which were observed (d = .05 and .06 respectively).

Item #3 discriminated poorly for USVI examinees from both school districts (d = .02). This was a moderately easy item (p = .83) which required examinees to count the number of dots in a set of dots arranged

. . . . .
. . . . . .
. . . . .

and choose the number of dots in the set from the alternatives 1) 15, 2) 16, 3) 17, 4) 18. It appears that examinees in the upper 27% of student scores on this test are just as likely to score correctly on the item as are those in the lower 27% (p = .81 and .80, respectively) and this is almost the same as the proportion correct for the whole sample. Examinees

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scoring incorrectly seemed to choose alternative #2 (16) most often indicating that the problem they are having is not due to their ability to recognize the numeral 17, but may be due to the counting method or pattern they are using. This latter skill may not correlate highly with other skills measured by the test.

Item #2 did not discriminate well for examinees in either the St. Thoams/St. John or St. Croix school districts (combined d = .09). This was a very easy item (combined p = .95) and this would account for the low discrimination index which was obtained.

Item #14 did not discriminate satisfactorily for examinees in the St. Thoma. 'St. John school district (d = .08). This was a difficult item for these examinees (p = . 29) and this should account for the low level of discrimination that was observed.

Item #19 did not discriminate well among St. Croix school district examinees (d = .12). In this moderately difficult (p = .38) item, examinees were asked to observe [illegible] of circles arranged in a random manner and to choose the [illegible] which half the circles are colored in. There appeared [illegible] pattern of incorrect responses. As in Item #3, [illegible]minees were required to come up with a strategy for count- [illegible] these circles and it may be that this skill is not [illegible]rrelated highly with the others on the test.

Item #22 discriminated poorly for St. Croix district examinees (d = .08). This was an item of average difficulty

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(p = .59) which showed the numeral 431 and required examinees to identify the digit in the 100's place from among the alternatives, 1) 1, 2) 3, 3) 4, 4) 0. St. Croix examinees did well on this item compared to the standardization group (p = .56). No pattern of incorrect responses could be noted.

Item #23 did not discriminate well for the smaple of USVI examinees (d = .06). This was due to the fact that it was a very easy item for these students (p = .98).

Item #25 was a very difficult item (p = .25) for USVI examinees and this accounts for the low level of the observed discrimination index (d = .17).

Summary of Student Skills

Number, notation, and operations.

St. Thomas/St. John school district examinees showed particular skill in their ability to identify the sign associated with an operation. St. Croix district examinees showed adequate achievement in this skill.

St. Thomas/St. John examinees also showed strong skill in indicating the position of a block of dots relative to other blocks. St. Croix district examinees showed weak achievement in this skill.

St. Thomas/St. John school district examinees showed weak skills in the following:

a) indentifying a set having a given number of objects.
b) selecting a set whose number lies within a given interval.

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St. Croix district examinees displayed adequate achievement in these skills.

Examinees from both school districts showed weak skills in the following:

a) identifying a group in which half of the object are marked

b) indicating the additive identity in set theory

USVI examinees from both the St. Thomas/St. John and the St. Croix school districts showed adequate skills on the following:

a) choosing the numeral representing a set of objects

b) choosing the number name representing a set of objects

c) choosing the missing numeral in a series

d) choosing a numeral representing the greatest relative value

e) choosing a set matching a given set in number

f) matching the number of a set with its representation as the sum of its subsets

g) identifies the digit having a specified place value

h) chooses the set which is equivalent to a given set

i) identifies a numeral represented as tens and ones

Geometry, measurement, and logical thinking. USVI examinees from both the St. Thomas/St. John and the St. Croix school districts demonstrated adequate skills in:

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a) identifying the object furthest from a specified point

b) distinguishing between simple geometric figures

c) determining the field having the greatest area

d) identifying the figure having a given geometric relationship

e) solving a problem in elementary logic involving transitivity

f) determining which object has the greatest area unused

g) identifying a clock showing a specified time

h) ordering containers by volume

They showed weak skills in the following:

a) indicating the 3-dimensional block figure having the greatest number of blocks

b) identifying the longest of four paths

c) solving problems in elementary logic involving spatial relationships

d) finding the total value of 3 coins

e) identifying appropriate units of measure

f) identifying a group of objects according to two properties

Mathematics Computation

Item Analysis

Item #1 and #2 discriminated poorly for examinees in the St. Thomas/St. John school district (d = .08 and .18, respectively). These were easy items for these students

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(p = .90 for both) and this would account for these low discrimination indices.

Item #5 discriminated poorly among St. Croix district examinees (d = .00). This was a very easy item for these students (p = .92), accounting for the low observed discrimination.

Item #8 discriminated poorly for the whole USVI sample (d = .02). This was a moderately difficult item (p = .40) where examinees were asked to determine the number of pieces of candy in five boxes each containing two boxes of candy. The alternatives were 1) 5, 2) 2, 3) 3, 4) 10. Examinees in the lower 27% group were almost just as likely to score correctly on this item as those in the upper 27%. As a whole, there was no significant difference between the proportion scoring correctly the local sample and the proportion scoring correctly in the standardization group. No patterns of incorrect responses was evident.

Item #13 discriminated poorly for the whole USVI sample (d = .11). The fact that this was a very difficult item for these examinees (p = .28) would account for this.

Item #14 showed poor discrimination for St. Croix district examinees (d = .04). This was due to the fact that these students found the item extremely difficult (p = .11).

Item #10 was a very difficult one for St. Thomas/ St. John examinees (p = .18) and because of this it discriminated poorly among these examinees (d = .09).

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Item #16 and #20 were very easy items for St. Thomas/St. John examinees (p = .96 and .94) and this accounts for the low levels of discrimination which were observed (d = .08 and .18).

Item #15 discriminated poorly among USVI examinees from both districts (d = .09). This was most likely due to the fact that this was an extremely easy item for this sample of students (p = .95).

Items #20, #22 and #31 were each very easy for St. Thomas/St. John school district examinees (p = .94, .92, and .92, respectively), resulting in unacceptably low discrimination indices (d = .18 and .15).

Summary of Student Skills

Addition and subtraction facts. St. Thomas/St. John school district examinees demonstrated particularly strong skills in subtracting number facts horizontally. St. Croix district examinees demonstrated adequate achievement in this skill.

Examinees from both school districts showed adequate skills in adding two number facts horizontally and in adding a column of three 1-digit numbers.

Mathematical sentences. St. Thomas/St. John examinees showed strong skill in finding the subtrahend in a subtraction problem which is presented horizontally. St. Croix school district examinees demonstrated adequate achievement in this skill.

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USVI examinees from both districts showed adequate skills in:

a) finding the addend in an addition problem presented horizontally

b) finding the minuend in a subtraction problem presented horizontally

Verbal problems. Examinees from both the St. Thomas/St. John and the St. Croix school districts showed adequate skills in their abilities to solve verbal problems by:

a) adding the cost of two small purchases

b) adding to find a total

c) subtracting to find how many are left

d) adding to find how many there are all together

e) adding the cost of three small purchases

They showed weak skills in solving verbal problems by:

a) subtracting to find how many more are needed

b) multiplying (or adding) to find a total when an equal number is given in each group

c) subtracting to make a comparison

d) using an elementary rate formula

St. Thomas/St. John school district examinees showed weak skills in solving verbal problems by:

a) finding the minuend in a subtraction problem

b) using simple division

St. Croix school district examinees demonstrated adequate achievement in these skills.

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Listening Comprehension

Item Analysis

Item #1 was a very easy one for St. Thomas/St. John school district examinees (p = .95) and this should account for the low level of discrimination which was observed (d = .08).

Item #2 discriminated poorly for St. Thomas/St. John school district examinees (d = .15). In this moderately easy (p = .82) item students had been read a passage by the teacher which related an outing by three children in which they participated in a number of activities. One of these was picnicing in the shade of a tree. They were then presented with pictures of a pond, a tree, and a rock and asked what the children in the story had their picnic by. It was noted that the proportion of examinees scoring correct in the upper 27% of the group was the same as that of the entire sample of St. Thomas/St. Croix examinees (.82). It appears that students in the upper group who scored incorrectly very often chose the pond as the correct answer. The item seemed clear and concise and the passage was also quite clear and simple, yet higher achievement examinees seemed to be attracted to the pond distractor. The reason for this is not apparent from the available information.

Item #12 did not seem to discriminate at all for St. Croix school district examinees (d = 0). The probability of an examinee in the upper 27% of the group scoring correctly on this item (.40) was the same as that of a

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student in the lower 27% and slightly lower than the proportion correct for the entire St. Croix sample (p =.42). Most examinees scoring incorrectly in this item chose the picture of a boy over the correct reponse of the picture of a girl although the concept in the read passage is clearly a feminine one with feminine adjectives and pronouns used, thoughout.

Item #7 discriminated poorly for St. Thomas/St. John school district examinees (d = .08). This was an easy item for these students (p = .85) and this would account for the low level of discrimination that was observed.

Items #12 and #14 did not discriminate well for St. Thomas/St. John school district examinees. Both items referred to the same passage of material and had the same choices. These were pictures of 1) an artists' paint brush, 2) a tray, and 3) a pair of scissors Approximately the same proportion of examinees scored correctly in the upper and low 27% of students in both items, although, the latter item seemed somewhat easier for these examinees (p = .41 for item #13 and p = .49 for item #14) There appeared to be no visible pattern of incorrect responses on either item. Both items require examinees to determine conceptual meaning from the passage and relate this to knowledge they already possess and it maybe that these examinees do not possess the requisite knowledge due to geographical or cultural reasons.

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Summary of Student Skills

Explicit detail - In this set of items examinees were required to identify specific details which were presented in nearly the same language as in the passage which was read to them or recognize that a specific detail was not mentioned; identify a sequence of events; or follow specific directions. USVI examinees from both districts showed weak skills in understanding explicit detail. The mean proportion answering correctly in this group of items was .74 for the St. Thomas/St. John sample and .69 for the St. Croix sample, compared to .82 for the standardization group. St. Thomas/St. John examinees scored significantly lower on 80% of the items in this grouping while St. Croix district examinees scored significantly lower than the standardization group on all items.

Implicit meaning - This set of items required examinees to identify what was heard when it was not presented explicitly, thus requiring some degree of interpretation. USVI examinees from both the St. Thomas/St. John and the St. Croix school districts demonstrated weak skills in understanding implicit meaning. The mean proportions of examinees correctly answering these item was .53 for the St. Thomas/St. John sample and .54 for the St. Croix sample, compared with .62 in the standardization group.

Conceptual meaning and classification - In this group of items, examinees were required to identify and classify

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concepts by relating what was heard to known concepts, or identify emotional attitudes or character traits or discern the meaning of words from content; or employ a conception of language to identify the doer or receiver of an action; or use concepts of comparative terms. St. Thomas/St. John examinees display adequate skills in this area (mean p = .66 compared to mean p = .68 in the standardization group) while St. Croix examinees demonstrated weak skills (mean p = .52) scoring significantly below the standardization sample in 80% of the items in this grouping.

Inference and logical analysis - In this set items, examinees were required to make inference and draw conclusions from what was heard; or to analyze problem situations and passages and make logical deducations. St. Thomas/ St. John examinees showed adequate achievement in these skills (mean p = .68 compared with a mean p = .72 for the standardization group), scoring significantly below the standardization group on only 18% of the items. St. Croix school district examinees showed weak skills on this grouping of items (mean p = .58) and scored below the standardization group on about 92% of the items in this item grouping.

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Grade 4 - Primary III Level

The Primary III Level of the Stanford Achievement Test consists of eight tests with the number of items listed below:

1. Vocabulary - 45 items
2. Reading Comprehension - 70 items
3. Word Study Skills - 55 items
4. Mathematics Concepts - 32 items
5. Mathematics Computation - 36 items
6. Mathematics Appications - 28 items
7. Spelling - 47 items
8. Language - 55 items

The descriptive statistics for these test scores, determined previously (see Bliss, 1982a), are presented below.

Test	Mean Raw Score	Standard Deviation	KR-20 Reliability	Standard Error
		Total USVI Sample		
Vocabulary	23.6	7.2	.83	2.96
Reading Comprehension	42.3	11.5	.91	3.46
Word Study Skills	29.8	10.1	.90	3.16
Mathematics Concepts	15.5	5.3	.77	2.55
Mathematics Computation	20.4	6.1	.83	2.52
Mathematics Applications	13.8	5.9	.86	2.16
Spelling	30.9	10.2	.93	2.69
Language	28.9	8.8	.86	3.28

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	St. Thomas/St. John Sample			
Vocabulary	23.4	5.9	.75	2.95
Reading Comprehension	42.2	11.3	.91	3.38
Word Study Skills	30.8	9.2	.88	3.17
Mathematics Concepts	15.0	4.4	.66	2.55
Mathematics Computations	19.6	5.1	.76	2.55
Mathematics Applications	13.8	5.5	.84	2.21
Spelling	30.4	9.2	.91	2.76
Language	28.1	8.1	.84	3.26

	St. Croix Sample			
Vocabulary	2.40	8.4	.88	2.91
Reading Comprehension	42.3	11.8	.92	3.35
Word S Skills	28.7	10.8	.92	3.06
Mathematics Concepts	16.0	6.2	.84	2.47
Mathematics Computations	21.4	7.0	.87	2.47
Mathematics Applications	13.8	6.0	.87	2.18
Spelling	31.5	11.2	.94	2.74
Language	29.8	9.4	.88	3.25

Following are the item analyses and summaries of student achievement on the objectives evaluated by each of the tests:

Vocabulary

Item Analysis

All items showed discriminated satisfactorily except the following:

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Item #1 was a very easy item for St. Thomas/St. John school district students (p = .91) and this accounts for the low level of discrimination which was observed.

Item #21 - This item asked examinees to choose the term which finished the statement, "If an object is shut up on all sides it is _____." The alternatives provided were 1) released, 2) empty, 3) detached, 4) enclosed. Alternative #3 was scored as correct. Most examinees scoring incorrectly on this moderately difficult item (p = .62 chose "detached" as their response. Students in the upper 27% were almost as likely to chose this response as were those in the lower 27% of total scores on the vocabulary test. There may be a fine distinction in the mind of fourth graders between something being "enclosed" and being "detached" from the outside world and many of the examinees may not have been able to make this distinction. This explanation is strengthened by the fact that almost all of the upper 27% of students scoring incorrectly on this item chose alternative #3 ("detached").

Item #33 was a very difficult item for St. Thomas/St. John school district examinees (p = .14) and this would account for the low level of discrimination which was observed.

Item #45 was a very difficult item for USVI students (p = .23) and this would account for the low levels of discrimination which were observed for examinees in both school districts.

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Summary of Student Skills

The sample of USVI students tended to be generally weak in the area of standard English vocabulary recognition. These weakness was seen across all areas of the best which included vocabulary found in

a) general reading and literature

b) nonfiction and reference words

c) mathematics and science

d) social science

On 31 of the 45 items on the test (69%) USVI examinees had a significantly lower percentage of examinees scoring correctly than the standardization group with only one item where they scored correctly a significantly greater proportion of the time than the standardization group.

Aside from the issue of statistical significance, the proportions correct were very low for USVI samples on most items on the test when compared with those of the standardization group.

Reading Comprehension

Item Analysis

The phenomenon of large numbers of students having trouble in completing the reading comprehension tests in secondary grades (Bliss, 1982b) and in the sixth grade sample was not as obvious in the fourth grade sample. In fact the proportion of omits for item #70 (the last item in the test) was only 23% for the entire USVI sample compared

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to 71% on the last item (#71) of the test given to the sixth grade sample. In addition, the percentage of omits for fourth graders did not appear to rise dramatically until item #53 where it was only 8%. Previously, the rise in omits was attributed to some phenomenon attached to the way USVI students respond to items which require them to read passages of text and respond to questions about them. This idea is further by observing the patterns of omits for fourth graders.

Unlike the reading comprehension tests of more advanced levels which are composed entirely of reading passages followed by questions about the passages, Primary Level II consists of stories where questions are placed after almost every sentence. For instance:

> Mary ran across the street holding a bottle of pop. It slipped from her hand and _____
>
> 1 1) bent 3) broke
> 2) ran 4) cried
>
> A car drove over it and cut its _____
>
> 2 1) window 3) door
> 2) roof 4) tire

This pattern continues through item #35 after which the familiar type of passage and questions form begins. The first two passages are short (6 and 8 lines, respectively) and this is followed by a longer passage (21 lines). The number of omits begins to increase after this longer passage and its questions (item #53).

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All items showed satisfactory discrimination indices except the following:

Item #1 and #6 were very easy items for USVI students (p = .95 for both items) and this would account for the low levels of discrimination observed.

Item #8 was a very easy item for St. Croix district examinees (p = .91) which would account for the low discrimination index seen on this item.

Item #9 was a very easy item for St. Croix students (p = .93) and this accounts for the low discrimination levels observed.

Item #35, #59, and #70 were very difficult items for USVI students (p = .14, .11, and .17, respectively) accounting for the low levels of discrimination observed for these items.

Summary of Student Skills

The mean difficulty index for items testing global or general meaning of material read was .67 for the USVI sample compared to .73 for the standardization group. The local sample of examinees scored significantly lower than the standardization group on only two of the six items measuring this skill. USVI students appear to have adequate skills in determining global or general meaning from readings.

The St. Thomas/St. John and the St. Croix sample of students showed mean difficulty indices of .50 and .53, respectively, compared to p = .59 for the standardization

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group on items testing the ability to identify explicit meaning from readings. Local examinees appear to have adequate skills in this area.

In the area of determining implicit meaning from readings USVI examinees showed a mean difficulty index of .72 in both districts compared to a mean p = .74 for the standardization group. It appears that the local sample of students displays adequate skills in this area of reading comprehension.

In determining meaning by content, St. Thomas/St. John school district examinees had a mean difficulty index of .67 and St. Croix district examinees scored a mean difficulty index of .66 compared to a mean of .73 for the standardization group. USVI students seem to perform adequately in this area.

In the area of determining inferential meaning from reading both the St. Thomas/St. John and the St. Croix sample of students had mean difficulty indices of .48 compared to p = .60 for the standardization group. On 10 of the 13 items in this grouping, local examinees scored significantly lower than the standardization group. It appears the USVI students are weak in their ability to determine inferential meaning from readings.

Word Study Skills

Item Analysis

All items showed satisfactory discrimination indices except for the following:

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Item #10 shows d = .00 for both local samples. In this item the examinees are supposed to recognize the vowel sound /o/ in "awkward" when the word is pronounced by the teacher and choose from among the four words, 1) after, 2) always, 3) other, 4) again written in their text books to find a word that "has the same beginning sound." Local students almost consistently chose alternatives 3 and 4 ("other" and "again") over the correct choice "always." It is possible that there are regional differences in pronounciation at work here. The word "always" is pronounced with a primary /o/ sound in the northeastern U.S., but is sounded like /ah/ in other parts of the U.S. and among U.S. Virgin Islands speakers of English. The pronounciation "ahl' ways", being the common pronounciation, it was very likely the one used by students who chose other alternatives. Since there is very likely no correlation between where the persons who students immitated while learning to speak (most likely their parents) and their word study skills, in general, the lack of discriminating power of this item is no mystery. Further, the value of this item in measuring the skill it purports to measure is dubious for the local population of students.

Item #27 was a very easy item for USVI examinees (p = .94) and this accounts for the low level of discrimination observed.

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Summary of Student Skills

Consonant sounds - These items examine the ability of students to recognize sounds of consonant letter within words.

USVI examinees showed adequate skills in discriminating among graphemes for:

a) the initial consonant sound /b/

b) the final consonant sound /n/

c) the final consonant sound /f/

They showed weak skills in discriminating among graphemes for:

a) the initial consonant sound /s/

b) the initial consonant sound /f/

c) the initial consonant sound /j/

d) the final consonant sound /k/

e) the initial consonant sound /y/

Consonant digraphs and consonant clusters - USVI examinees showed weak skills in discriminating among graphemes for the consonant digraph /th/ in the initial position.

St. Croix school district examinees weak ability in discriminating between graphemes for:

a) the cluster of initial s + a consonant (sp)

b) the digraph /ch/ in the initial position

c) the digraph /sh/ in the final position

d) the digraph /sh/ in the initial position

St. Thomas/St. John school district examinees displayed adequate skills in these areas.

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USVI examinees from both school districts showed adequate skills in discriminating between graphemes for:

a) the cluster of an initial consonant + r (gr)

b) the cluster of final sk

c) the cluster of a final consonant + d (rd)

d) the digraph /ng/ in the final position

Short vowel sounds - USVI examinees showed weak skills in discriminating among graphemes for:

a) the short vowel sound /i/

b) the short vowel sound /o/

St. Croix school district examinees showed weak skills in discriminating among graphemes for:

a) the short vowel sound /u/

b) the short vowel sound /oo/

St. Thomas/St. John examinees displayed adequate skills in this area.

USVI examinees from both school districts displayed adequate skills in discriminating among graphemes for:

a) the short vowel sound /e/

b) the short vowel sound /a/

Long vowel sounds - St. Croix school district examinees showed weak skills in discriminating among graphemes for:

a) the long vowel sound /e/

b) the long vowel sound /a/

St. Thomas/St. John examinees showed adequate skills in these areas,

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USVI examinees from both districts displayed adequate skills in discriminating among graphemes for:

a) the long vowel sound /i/

b) the long vowel sound /oo/

c) the long vowel sound /o/

d) the long vowel sound /yoo/

Variant vowel sounds - USVI examinees from both school districts showed weak skills in discriminating among graphemes for:

a) the diphthong /o /

b) the schwa sound

c) a vowel sound before r

These examinees showed adequate skills in discriminating among graphemes for:

a) the vowel sound /o/

b) the diphtong /oi/

Affixes - USVI examinees from both school districts showed strong ability to discriminate among graphemes for the suffix "-tion." St. Croix examinees showed strong skill in discriminating among graphemes for the prefix "-en." St. Thomas/St. John district students showed adequate achievement in this skill.

Examinees from both school districts showed adequate skills in discriminating among graphemes for:

a) the prefix "-re-."

b) the suffix "-ance."

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Mathematics Concepts

Item Analysis

All items seemed to discriminate satisfactorily except item #22 for the St. Croix school district sample of examinees. This was a very difficult item for these students ($p = .16$) and there was no pattern of incorrect responses that could be noted.

Summmary of Student Skills

Number - This item grouping refers to concepts which deal with the relationships between different types of numbers (e.g. primes, odds vs evens, fractions vs wholes). USVI examinees from both school districts showed weak skills in their ability to choose a number belonging in a given number series.

St. Thomas/St. John district examinees showed weak skills in the following areas:

a) representing a whole number in terms of a specified fraction

b) determining the point at which a given number is located on the number line

c) adding in a finite system of clock module

St. Croix district examinees demonstrated adequate skill in these areas.

USVI students from both school districts displayed adequate skills in the following areas:

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a) identifying a number at a particular point on a number line

b) identify a set consisting only of even numbers

c) indicating the position of a number relative to three given numbers

Notation - refers to the technique by which numbers are expressed in written form. Some forms include expanded notation, differing base values, decimals, and fractions. USVI examinees from both school districts showed weak skills in:

a) identifying the remainder of a subtraction problem when the minuend is represented by a place-value device

b) choosing the expanded notation representing an addition example

St. Thomas/St. John school district examinees displayed weak ability in determining the difference between two numbers represented on a place value device. St. Croix district examinees showed adequate achievement in this area.

St. Croix school district examinees showed weak ability in the following skills:

a) translating the word form of a given number into Arabic numerals

b) identifying the expanded notation representing a a given numeral

St. Thomas/St.John examinees displayed adequate skills in these areas.

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USVI examinees from both school districts displayed adequate ability in the following skills:

a) selecting the numeral in which the digit in the thousands place has the greatest value

b) translating a given Arabic numeral into word form

c) recognizing the form of an expression not representing a given number

d) choosing the Roman numeral equivalent to a given Arabic numeral

e) marking the hundreds place digit in a given numeral

Operations - refers to the manipulation of numbers based on the use of a set of previously defined functions (e.g. addition, subtraction, multiplication, and division).

St. Croix district examinees showed strong skills in:

a) identifying the sign associated with an operation

b) choosing a number sentence describing a given operation

They displayed weak skills in:

a) identifying zero as the additive identity

b) indicating that the inverse of a given number sentence is true if the sentence is true

St. Thomas/St. John school district examinees displayed adequate skills in all these areas.

St. Thomas/St. John examinees showed weak skill in identifying the missing number in a number sentence

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illustrating the commutative property of addition. St. Croix school district examinees performed adquately on this skill.

USVI student from both school districts displayed adequate skills in:

a) identifying the missing terms in a number sentence illustrating the associative property of addition

b) identifying the number of sets of a number which are equal to a set of another number

c) interpreting a number of sentence in terms of a second sentence whose operation is the inverse of the first

Geometry and measurement - refers to the concepts which involve shapes, measurement, and logic. USVI examinees in both school districts showed weak skill in marking a row where measures are arranged in order from small to large.

St. Thomas/St. John school district examinees displayed weak skill in estimating the length of a line segment while St. Croix examinees showed adequate achievement in this skill.

Examinees from both school districts showed adequate skills in:

a) identifying the area of the interior region of a figure

b) indicating size relationships between two similar geometric figures

c) indicating a point within the interior of two overlapping geometric figures.

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Mathematics Computation

Item Analysis

Item #2 was very easy (p = .89) for St. Thomas/St. John district examinees and this should account for the low level of discrimination observed (d = .06).

Item #25 was a very easy item (p = ,92) for USVI students from both districts, thus accounting for the observed low discrimination index (d = .10).

Item #34 was a moderately difficult item for St. Thomas/St. John district examinees (p = .21). It required students to divide 129 by 3 with the problem presented in standard form. No pattern of incorrect responses could be found and the item seemed clear and unambiguous. The low discrimination index (d =.12) could be accounted for by the difficulty of the item or the fact that, being the only item on the test requiring long division, the intercorrelation between it and other items was particularly low for this sample of students.

Summary of Student Skills

Knowledge of primary facts - USVI examinees from both school districts displayed adequate skills in all areas of knowledge of primary facts tested by this examination. These skills were:

a) adding primary facts to obtain sums of twelve or less

b) adding primary facts to obtain sums greater than twelve

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c) subtracting primary facts with a minuend less than twenty

d) multiplying primary facts with a product of 25 or less

e) multiplying primary facts with a product greater than 25

f) dividing primary facts with a dividend of 25 or less

g) dividing primary facts with a dividend greater than 25

Addition and substraction algorithms - This set of skills involves the use of a series of prelearned steps for finding sums and remainders. St. Croix school district showed particularly strong skills in:

a) subtracting 2-digit subtrahends from 3-digit minuends, renaming tens

b) subtracting 3-digit subrahends from 3-digit minuends, renaming hundreds

St. Thomas/St. John district examinees showed adequate skills in these areas.

USVI examinees from both school districts showed adequate skills in:

a) adding a 3-digit numeral and a 2-digit numeral without renaming

b) adding two 3-digit numerals, renaming ones

c) subtracting a 2-digit subtrahend from a 3-digit minuend without renaming

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d) adding two 3-digit addends, renaming ones and tens and obtaining a 4-digit sum.

Multiplication and division algorithms - This set of skills involves the use of a series of prelearned steps for finding products and quotients.

St. Croix school district examinees displayed particularly strong skills in multiplying 2-digit by a one-digit multiplier with and without renaming ones. St. Thomas/ St. John district showed adequate ability in these skills.

Examinees from both school districts showed adequate skills in:

a) finding the devisor in the horizontal algorthm

b) dividing a 3-digit numeral by a 1-digit divisor without renaming, and obtaining a 2-digit quotient.

Mathematics Applications

Item Analysis

All items showed acceptable discrimination indices except the following:

Item #1 was a very easy item for USVI examinees in both school districts (p = .90) and this would appear to account for the poor discrimination which was observed.

Item #15 was a very difficult item for USVI examinees (= .11). It required students to find the number of yards in six feet. The question seemed clear and unambiguous and there was no discernable pattern of incorrect responses.

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Summary of Student Skills

Solution of a one-step problem - These items required students to find the solutions to word problems that could be solved using a single mathematical operation.

USVI examinees from both school districts showed weak ability in solving word problems requiring subtracting to compare two quantities.

St. Croix district examinees showed weakness in their ability to solve word problems requiring subtraction to find a remainder while St. Thomas/St. John examinees showed adequate achievement in this skill.

USVI examinees from both school districts performed adequately in solving word problems which required:

a) subtracting to find "how many are left"

b) adding to find a total

Analysis and development of a solution design - These items required students to carry out the following series of steps: 1) determine the operations needed to solve a word problem, 2) order the operations, and 3) carry out the operations in the appropriate manner in order to arrive at a correct solution.

St. Croix school district examinees displayed adequate skills in solving word problems by:

a) using knowledge of 1/2 to determine specific rate

b) determining what additional information is needed to solve a given problem

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They showed weak skills in solving word problems by:

a) adding and subtracting in a two-step sequence

b) determining specific rate

c) multiplying and subtracting in a two-step sequence

d) multiplying to determine the total number in a group

e) subtracting and adding in a two-step sequence

f) separating relevant and irrelevant data

St. Thomas/St. John examinees showed weak abilities in all of the problem solving situations listed above.

Measurement and graphs - examinees from both the St. Thomas/St. John and the St. Croix school districts displayed adequate skills in solving word problems which required them to:

a) read a tally sheet to quantify a category

b) read a tally sheet to determine the category of greatest number

c) read a tally sheet to find a total

d) find the total cost of three items in a price display

They showed weak skills in solving word problems which required them to:

a) convert standard units of linear measure

b) convert standard units of linear measure and subtract

c) compare two items in a price display

d) add and subtract in a two-step sequence using a price display

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Spelling

Item Analysis

All items on the spelling test functioned appropriately for examinees in both school districts.

Summary of Student Skills

Phonics - St. Thomas/St. John school district examinees showed strong skills in identifying misspelled words where /ch/ is spelled cs instead of ct. St. Croix district examinees displayed adequate skill on this objective.

USVI examinees from both districts showed adequate levels of achievement on all other phonics spelling skills tested. These constituted the ability to identify misspelled words where:

a) the final e of a vowel-consonant-e pattern is omitted

b) /u/ is spelled o instead of u

c) the vowel from a vowel digraph before r is ommited

d) /e/ is spelled e instead of ea

e) a consonant letter is unnecessarily doubled

f) /k/ is spelled ck instead of k

g) /ch/ is spelled sh

h) /k/ is spelled k instead of ck

i) one letter of a doubled consonant is omitted

j) /f/ is spelled v instead of f

k) initial wh is spelled w

l) /s/ is spelled se instead of ce

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m) /o/ is spelled ow instead of o

n) /el/ is spelled el instead of le

o) vowel-consonant-e pattern of-ite is substituted for-eight

p) /e/ is spelled ee instead of ea

q) /o/ is spelled oa instead of o

r) schwa syllable is omitted

s) final silent e is omitted

t) /el/ is spelled le instead of el

u) final e is added to a word ending in a short vowel plus consonant

v) loo/ is spelled on instead of oo

w) final /e/ is spelled y instead of ey

x) /e/ is spelled a instead of e

Word building - USVI examinees in both the St. Thomas/St. John and the St. Croix school districts displayed adequate skills in all word building spelling skills. These constituted the ability to identify misspelled words in which:

a) /t/ is spelled -t instead of -ed in forming past tense

b) the final e of a vowel-consonant -e patterns is omitted in forming a compound

c) the final e is omitted when adding -ly

d) the final consonant letter of a cluster is doubled when adding -ed

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e) the final e of a vowel-consonant -e pattern is retained when adding -ly

f) a compound is formed without changing all to al

g) the final consonant letter is doubled when adding -er

h) the final consonant letter is doubled when adding -ing

i) the final consonant letter is doubled when adding -ed

j) the final e is retained when adding -ing

k) the suffix -16 is misspelled

l) the plural is formed without changing the final y to i

m) -s instead of -es is used to formed the plural of a word ending in sh

n) the suffix -ful is misspelled

o) the final -es instead of -s is used to spell the tense

p) -es instead of -s is used to form the plural

Language

Item Analysis

All items on the language test showed acceptable discrimination indices except the follwoing:

Item #9 was a very easy item for St. Thomas/St. John examinees (p = .91) and this would account for the low level of discrimination observed (d = .14).

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Item #13 was an easy item for USVI examinees in both school districts (p = .82). The item required students to choose the correct form of a formal name from among the alernatives, 1) Mrs. finn, 2) Mrs. Finn, 3) mrs. finn, and 4) Mrs Finn. The vast majority of examinees who scored incorrectly chose alternative #4, obviously missing the fact that the period in the honorific was missing. This was true among the upper and lower 27% of the examinees and it is likely that the ability to detect this difference does not correlate highly with the othe skills tested on the examination. The fact that other items testing use of capitalization convention, but do not use an abbreviated honorific show good discrimination supports the idea that this item was not acutally discriminating between students who did and did not have the concept of capitalization in proper names as purported by the test publishers.

Item #16 was a difficult item (p = .25) for USVI students. It required them to finish the sentence, I asked, "Why can't we have _____, with the alternatives being, 1) school?", 3) school?, and 4) school." Most examinees chose alternatives #3 and #4 and this was equally true in the upper and lower 27% groups. The item seems clear and unambiguous. Most examinees were aware that the sentence was either a question or a quotation, but few realized that it was both.

Item #33 was a difficult item for USVI students (p = .22). It actually discriminated negatively for St. Croix school district students (d = -37). Examinees where asked to choose

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an appropriate completion to the sentence, "I was glat that Mrs. Finn _____ wrong." The alternatives were, 1) couldn't find nothing, 2) didn't find nothing, 3) couldn't find anything, and 4) couldn't never find anything. Analyis of item responses showed that students in the upper 27% of total language scores tended to choose alternative #1. These use of the double negative may be a dialectical artifact since the phenomenon did not show itself on any of the other items which tested the ability avoid double negatives and examinees scored well on these other items (p = .73 and p = .58).

Summary of Student Skills

Capitalization conventions - These are skills which involve examinees' ability to recognize appropriate uses of capitalization of words.

St. Croix school district examinees showed particularly strong skill in their ability to identify the correct capitalization convention for holidays. St. Thomas/St. John examinees displayed adequate skill in this area.

USVI examinees from both school districts showed weak skill in identifying the capitalization convention for common nouns.

St. Thomas/St. John school district examinees showed weak skills in identifying the correct capitalization conventions for:

a) cities and states

b) the closing of a letter

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St. Croix district students displayed adequate skills in this area.

USVI examinees from both school districts showed adequate skills in identifying the correct capitalization conventions for

a) street addresses

b) the salutation of a letter

c) a proper name

d) the beginning of a sentence

e) the days of the week

f) titles

g) the name of a school

Punctuation conventions - These skills involve the ability to recognize the appropriate use of punctuation in a given sentence.

St. Thomas/St. John school district examinees showed weak skills in identifying the correct punctuation convention of using:

a) a comma between city and state

b) a comma after the closing of a letter

St. Croix district examinees displayed adequate skills in this area.

USVI examinees in both school districts showed adequate skills in identifying correct punctuation conventions in using

a) no punctuation after the street address in the heading of a letter

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b) a comma between the day of the month and year

c) a comma after the salutation in a friendly letter

d) a period to end a declarative sentence

e) a question mark to end an interrogative sentence

f) a period after an abbreviation of title

g) a question mark to end an interrogative sentence enclosed in quotation marks

h) commas to separate items in a series

i) a comma after a name used in direct address

j) an apostrophe in a contraction

k) a comma after an introductory "yes"

Usage conventions - These refer to skills involving the ability to choose appropriate forms of words depending on the content of the sentence in which they are used.

USVI examinees from both the St. Thomas/St. John and the St. Croix districts showed adequate skills in the following usage situations:

a) indefinite article

b) where there is a pronoun form in compound subject and identifying the word order for a proper noun and a pronoun

c) using the past tense of the word "to know"

d) using a negative form to avoid a double negative

e) using the past tense of the verb "to bring"

f) using the past tense of the verb "to tell"

They showed weak skills in the following usage areas:

a) using the present tense of the verb "to hurt"

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b) using the past-perfect tense of the verb "to come"

c) using the past tense of the verb "to teach"

d) using the past tense of the verb "to give"

e) using the past tense of the verb "to run"

f) using a pronoun form in a compound subject and a form of the verb "to be"

g) using the present tense of the verb "to ask"

h) using a negative form of the verb "to be"

i) using the present perfect tense of the verb "to grow"

j) using the present tense of the verb "to become"

Language sensitivity : word sensitivity - These skills relate to the ability of examinees to perceive appropriate usage of words in a particular content.

USVI examinees from both school districts displayed adequate skills in their ability to complete a sentence using"

a) gerunds

b) a form of the word "to float"

d) a verb

e) a pronoun to agree with an antecedent

They showed weak skills in their abilities to complete a sentence using:

a) an antecedent for a given pronoun

b) a verb form

St. Thomas/St. John school district examinees showed weak abilities in completing sentences using:

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a) a conjunction

b) an adverb

c) a verb and verb form

St. Croix district examinees showed adequate skills in these areas.

Language sensitivity : sentence sensitivity - St. Thomas/ St. John examinees displayed weak skills in choosing phrases which complete sentence fragments and recognizing complete sentences. St. Croix district examinees showed adequate achievement in both of the skills.

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Grade 6 Intermediate II Level

The Intermediate II Level of the Stanford Achievement Test consists of eight tests with the number of items listed below:

1. Vocabulary - 45 items
2. Reading Comprehension - 71 items
3. Word Study Skills - 50 items
4. Mathematics Concepts - 35 items
5. Mathematics Computation - 45 items
6. Mathematics Applications - 40 items
7. Spelling - 60 items
8. Language - 80 items

The means, standard deviations, and reliability estimates for these tests, determined previously (see Bliss, 1982a), are presented below.

Test	Mean Raw Score	Standard Deviation	KR-20 Reliability	Standard Error
		Total USVI Sample		
Vocabulary	21.6	7.8	.85	3.05
Reading Comprehension	32.5	12.4	.93	3.29
Word Study Skills	28.6	11.1	.93	2.93
Mathematics Concepts	18.2	5.7	.79	2.60
Mathematics Computation	25.0	7.4	.85	2.88
Mathematics Applications	18.4	8.0	.89	2.65
Spelling	35.2	13.6	.94	3.33
Language	37.4	13.8	.92	3.91

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	St. Thomas/St. John Sample			
Vocabulary	22.6	8.1	.86	3.05
Reading Comprehension	31.8	12.7	.94	3.11
Word Study Skills	29.4	11.5	.94	2.82
Mathematics Concepts	19.3	5.5	.78	2.59
Mathematics Computation	24.8	8.0	.88	2.78
Mathematics Applications	19.2	8.0	.89	2.64
Spelling	35.5	14.2	.95	3.18
Language	37.9	15.0	.93	3.98
	St. Croix Sample			
Vocabulary	19.7	6.8	.80	3.05
Reading Comprehension	33.5	11.5	.91	3.46
Word Study Skills	27.1	10.5	.92	2.93
Mathematics Concepts	16.4	5.5	.77	2.64
Mathematics Computation	25.4	6.3	.78	2.94
Mathematics Applications	16.9	7.8	.89	2.60
Spelling	34.7	12.5	93	3.30
Language	37.0	11.5	.87	4.14

Following are the item analyses and summaries of student achievement on the objectives evaluated by each of the tests:

Vocabulary

Item Analysis

All items showed acceptable discrimination indices with the exception of the following:

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Item #37 - This was a particularly difficult item for students in the USVI sample (p = .19) and this accounts for the low level of dicrimination observed on it. The item required students to recognize that a ?bolt? is a unit used to measure cloth. A large number of those answering incorrectly chose the alternative "tile."

Item #40 - This was also a difficult item for the local sample of students (p = .16). It required students to indicate that a person who has little respect for another looks at that person with "scorn." A large number of examinees responding incorrectly chose "a scowl," and there is some question of the item being ambiguous since a case could be made for this answer.

Item #41 - This item was also extremely difficult for the USVI examinees (p = .11). It asked students to indicate that the perfect person for a job was "ideal." There seemed to be no recognizable patterns of incorrect responses.

Item #43 - This discriminated satisfactorily among St. Thomas/St. John district examinees, but poorly among examinees in the St. Croix district. The latter group found the item more difficult than the former (p = .21 vs 0 = .31) and the same number of examinees in the upper and lower scoring groups obtained correct scores in the St. Croix sample. The item required examinees to know that hot metal is shaped on "an anvil." Incorrect responses were primarily "a chisel" a lathe." The item appears to be functioning properly with the low discrimination index being the result of the small number of students who knew what an anvil was.

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Item #44 - This proved to be a difficult question for the local sample of examinees (p = .7). The item asked examinees to identify "endure" as meaning the undergoing of an experience for a long period of time. A large proportion of those answering incorrectly chose "undertake" as the correct answer. This was probably the result of the use of the recognition of the prefix "under." In short, the distractor seemed to work well.

Item #45 - This was an extremely difficult item for USVI students (p = .08). It required students to know that people seek a shallow portion of a river in order to "ford" it. Students overwhelmingly chose "swim" and "drift" and ignored the distractor "shoot." It seems clear that Virgin Islands students, inexperienced with rivers and streams, were not aware of this term, but could associate "swim" and "drift" with water in the form that they have experienced it (i.e. ocean). The item seems to be operating as it should.

Item #47 - This was a difficult item for the USVI sample of examinees (p = .18). It required examinees to indicate that the term "processing" referred to an ongoing situation. There appeared to be no pattern to the incorrect responses.

Item #50 - This item required examinees to indicate that "secede" is a term used to indicate the leaving of a state from the union of states. It was very unfamiliar to the USVI sample of students (p = .19) and did not seem to discriminate <u>at all</u> among examinees (d = .07). There seemed to be no pattern of incorrect responses. It could be that

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this term (most commonly encountered) in studies of the U.S. Civil War was familiar to examinees since this period of history is not emphasized in USVI elementary schools owing to the fact that the Danish West Indies were not affected by the war.

Summary of Student Skills

In general, USVI students tended to be weak in the area of standard English vocabulary recognition. This weakness was especially pronounced in the areas of words encountered in the areas of social science and arts and crafts and less so in those of math and science. In addition weaknesses were apparent in the areas of vocabulary found in general literature and in references.

Of the fifty items on the test, a significantly smaller proportion of USVI students were able to respond correctly when compared to the standardization group. Beyong the question of statistical significance, the proportions of USVI students who successfully answered many items was substantially lower than the standardization group. The differences in item mean difficulty values are a clear indication of this problem.

Most items seem to function well with poor discrimination values of some being the result of extremely low difficulty indices.

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Reading Comprehension

Item Analysis

Technical Report #2 indicated that students in grades 8, 10, and 12 had difficulty completing the Reading Comprehension test. This same phenomenon was observed for grade 6 examinees. Table I presents the number of examinees who omitted each item on the test. It should be remembered that since number right scoring precedures were used, an omitted item is counted as an incorrect response and that this process tends to deflate the difficulty indices and individual student scores. Because of this situation items which less than 2/3 of the examinees were able to attempt were omitted from the analysis. Technical Report #2 (Bliss, 1982b, pp. 96-97) attempts to speculate as the causes of this phenomenon. All items appeared to have satisfactory discrimination indices with the exception of item #9 which appeared to be very easy (p = .95) for the St. Croix group of examinees. St. Thomas/St. John also found it easy (p = .93 and d = .21). The low levels of discrimination was due to the simplicity of the item (which required examinees to identify meaning inferred in a passage).

Summary of Student Skills

Restricting the analyis to items 1 to 47, the following conclusions can be drawn.

The mean difficulty index for items testing global or general meaning of a portion of reading material was p = .53

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Proportions of the Sixth Grade Sample
Omitting Reading Comprehension Test
Items (Percents)

ITEM #	USVI	STT/STJ	STX
1	0	0	0
2	1	1	0
3	1	1	0
4	0	0	0
5	1	1	1
6	0	0	0
7	0	0	0
8	0	0	0
9	0	0	0
10	0	0	0
11	0	0	0
12	0	0	0
13	0	0	0
14	0	0	0
15	0	0	0
16	0	0	0
17	2	3	0
18	0	1	0
19	1	1	0
20	1	2	0
21	1	2	0
22	1	1	0
23	4	5	1

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Table 2 continued

24	2	3	0
25	3	4	0
26	3	4	1
27	3	3	3
28	4	7	0
29	4	6	[illegible]
30	4	6	0
31	5	5	0
32	8	12	1
33	8	12	1
34	9	13	1
35	11	14	4
36	11	15	4
37	15	21	4
38	17	22	9
39	18	24	6
40	22	28	11
41	21	29	8
42	26	34	11
43	26	33	13
44	26	34	11
45	30	40	13
46	28	37	13
47	32	43	14
48	34	45	14
49	36	45	19

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Table 2 continued

50	40	50	23
51	43	54	24
52	44	54	24
53	45	55	26
54	47	57	28
55	53	65	31
56	53	66	31
57	56	68	33
58	55	69	33
59	57	70	34
60	59	72	35
61	61	77	34
62	62	76	38
63	64	77	39
64	64	7[illegible]	40
65	65	79	40
66	66	81	39
67	70	86	41
68	70	85	44
69	71	86	43
70	72	87	44
71	71	87	43

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for each of the samples in the two school district as well as for the whole USVI sample. The standardization group mean was p = .56. USVI students sampled seem to have adequate skills in the ability to determine global meaning from written material.

The mean difficulty index for items testing the ability of students to determine meaning explicity written in textual material was .66 for the total USVI sample, .67 for the St. Thomas/St. John district sample and .61 for the St. Croix district sample For the continental U.S. standardization group, the mean difficulty index was .68. USVI students appear to exhibit adequate skills in their ability to determine explicitly stated meaning from text.

The mean difficulty index for items testing the ability of students to determine meanings that are implicit written presentations was .65 for the entire USVI sample and for the samples from each of the individual districts. For the standardization group the mean was .65. USVI students appear to have adequate skills in the area of determining implicit meaning.

The mean difficulty index for items testing students' abilities to determine meanings inferred in reading selections was .49 for the entire USVI sample and for the samples from each of the individual districts. For the standardization group the mean was .58. USVI students appear to be somewhat weak in the area of determining inferential meaning.

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Word Study Skills

Item Analysis

All items appeared to have satisfactory discrimination indices and appear to be functioning satisfactorily.

Summary of Student Skills

Consonant sounds- Students in both the St. Thomas/St. John and the St. Croix school district had difficulty recognizing that the grapheme dg as in "edge" was sounded /j/.

St.Croix students seemed weak in recognizing the following consonant sound graphemes.

a) g pronounced /g/ as in "guide:

b) c pronounced /k/ as in "scout"

c) b pronounced /b/ as in "ribbon"

d) ch prounounced /ch/ as in "cheese"

e) ough pronounced /f/ as in "enough"

f) sh pronounced /sh/ as in "shout"

St. Croix district students appear to be very weak in the area of discrimination of consonant sounds with a mean difficulty index of .35 compared with .51 for the students in the St. Thomas/St. John district and .50 for the standardization group.

Short and long vowel sounds- USVI sixth grade students, in general, appear to have difficulty recognizing the graphemes for the following regular vowel sounds:

a) short vowel sound /e/ as in 'feather"

b) short vowel sound /o/ as in "boner"

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c) short vowel sound /u/ as in "must"

d) short vowel sound /i/ as in "trip"

St. Croix district students also have difficulty recognizing the graphemes for the following vowel sounds:

a) long vowel sound /e/ as in "tea" and "only"

b) long vowel sound /o/ as in "home"

It appears that St. Thomas/St. John students only have difficulty identifying graphemes for the short vowel sounds while being fairly proficient in recognizing those long vowel sounds. St. Croix district students seem to have difficulty with both long and short vowel sounds.

Variant vowel sounds- these refer to vowel sounds that cannot be classified as "long" or "short" and include such things as diphthongs and the "schwa" sound. USVI students appear to have difficulty in recognizing graphemes for all of the variant vowel sounds tested. These were:

a) the dipthong /oi/

b) the schwa sound

c) the vowel sound /o/ as in "order" and "jaw"

d) the diphthong /ou/

e) the vowel sound /u/ as in "fur"

The particular difficulty the local students appear to have with these variant vowel sounds is also demonstrated mean difficulty indices for these items which was .54 for the USVI examinees and .65 for the standardization example.

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Of particular note is the pattern of incorrect responses by examinees on items which required them to recognize graphemes for vowel sounds. More often than not, examinees scoring incorrectly on items chose distractors having the same letters in approximately the same positions the criterion word. For example, when asked to identify the word having the same sound as the "dge" in the word "edge" from among the choices 1) league 2) jelly 3) goods 4)grades, most examinees scoring incorrectly choose 1) rather than 2). Of course, the item, and items like it, may be functioning well and these may simply be cases of good distractors (after all, the items did discriminate satisfactorily). The directions are very clear and concise. However, the sample item used to illustrate the process requires students to choose the word that has the same sound as the "i" in did from among 1)bud 2)hid 3)by 4)bat, with the correct answer being 2). This example is one where the correct answer does have the same letter in the same position as the criterion and this may have been confusing to some sixth graders. These items need to be examined more closely to determine what is operating, here.

The rest of the items on the Word Study Skills test required students to identify extra syllables in words presented under various language conventions. For example, 1)re 2)en 3)mem 4)ber. In this case, the answer is 2). The syllable "en" is not required to produce the word "remember."

Affixes - In these items the examinee is required to identify the extra syllable when part of a word stem and its affix are

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are separated. For example: 1)el 2)er 3)trav 4)tal. The correct answer is 4) since the word is "traveler". USVI students showed strong skills in this area with a mean probability of answering correctly of .60 in the St. Thomas/St. John school district and .61 in the St. Croix district. The mean difficulty index for the standardization group was .54.

Syllables (VC-CV)- In these items students were required to identify the extra syllable when part of a word was divided according to the Vowel/Consonant-Consonant/Vowel rule. For example: 1)ence 2)dif 3)fer 4)i. Here, the extra syllable is "i" (choice#4). USVI students showed strong abilities in this skill with mean difficulty indices over these items of .68 in the St. Thomas/St. John district and .74 in the St. Croix district. The mean difficulty index for the standardization sample was .59.

Syllables- (VC-V or V-CV)- In these items students were required to identify the extra syllable when part of a word was divided according to the Vowel/Consonant-Vowel or Vowel-Consonant/Vowel rule. For example: 1)er 2)ly 3)gov 4)nor. Here, the extra syllable is "ly" (choice #2) , USVI examinees showed strong abilities in this skill with mean difficulty indices of .63 in the St. Thomas/St. John school district and ..65 in the St. Croix district. The mean index of difficulty for the standardization sample was .53.

Accent- In these items examinees were required to identify the extra syllable when part of a word was divided according to

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accent rules. USVI students showed strong abilities in this skill with mean difficulty indices of .60 in the St. Thomas/ St. John district and .62 in the St. Croix district. The mean difficulty index for the standardization was .54.

Math Concepts

Item Analysis

All items appeared to discriminate satisfactorily except the following:

Item #4 showed lowed discrimination for students in the St. Thomas/St. John district. This was a moderately difficult (p=.71) item for these students which asked them to choose the number of the empty set. The distribution of responses showed that the probability of a student in the upper 27% of total scores was virtually the same as the probability of as that of a student in the lower 27% scoring correctly (.77 vs.64). There appeared to be no recognizable pattern of incorrect scores.

Item #6 showed poor discrimination in the St. Croix school district. This moderately difficult item (p=.51) required examinees to convert numbers from expanded to place value notation. In this case the probability of an examinee in the lower group obtaining the correct answer was approximately the same as one in the upper group (.64 vs.55). Here there was a pattern in the set of incorrect responses. Examinees who answered the item incorrectly failed to use zero as a place holder in the hundreds place when the expanded number was (nx1000) + (k x 10) + (j x 1). They either chose a three place number in the form

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"n k j" or placed the zero in the wrong position. It may be that the skill tested here is not intercorrelated with the other math concepts being tested to a high degree and this could account for the low level of discrimination observed.

Item #23 showed poor discrimination for examinees in the St. Thomas/St. John district. This was a very difficult item for these examinees (p=.22) and this could account for the poor discrimination. The pattern of responses which were incorrect casts some light on what was happening here. The item consisted of a 3 x 7 rectangular grid with a shaded parallelogram inside the grid . The question called for the student to choose the number of "square units" which were shaded and the distractors chosen most often were those that described the number of grid squares either totally shaded or the sum of those partially <u>or</u> totally shaded. Students either ignored the word "unit" in the question or were unaware of the meaning of the term "square unit."

<u>Summary of Student Skills</u>

<u>Number</u>- This item grouping refers to concepts which deal with the relationships between different types of numbers (e.g. primes, odds vs evens, fractions vs wholes). USVI students showed particular strength in being able to determine the fractional part of an area which is shaded. They were particularly weak however in the ability to express this shaded portion as a percent of the total area. In addition, the local sample of students showed weak skills in the ability to subtract in a finite system using a clock module.

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St. Croix school district examinees were weak in their ability to select a number line graph of a defined set of numbers. St. Thomas/St. John district examinees appeared to have adequate skills in this area.

In addition, examinees in the USVI sample displayed adequate skills in the following concepts:

a) choosing the number belonging in a given number series.

b) selecting a set consisting only of odd numbers

c) selecting the number line graph of a defined set of numbers.

d) identifying prime numbers.

e) determining length on a number line.

Notation- refers to the technique by which numbers are expressed in written form. Some forms include expanded notation, differing base values, decimals, and fractions. USVI students show weak skills in converting from exponential to standard notation.

St. Thomas/St. John school district students show particularly strong abilities in translating numbers in word form into Arabic numbers and in rounding off whole numbers. St. Croix district examinees display great weakness in the former of these two skills. St. Croix district students also show weakness in their ability to convert from expanded to numeral form. St. Thomas/St. John district students display adequate ability in this skill.

Notation skills in which all USVI students appear to perform adequately are:

a) identification of place value in a numeral

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b) identification of digits in a period of a numeral

c) identification of a number that is 100 greater than another number

d) estimations of products to the nearest hundreth

Operations- refers to the manipulation of numbers based on the use of a set of previously defined functions (d.g. addition, subtraction, multiplication). The St. Croix sample examinees showed weakness in their ability to identify division as the inverse of multiplication while examinees in the St.Thomas/ St. John district showed adequate ability in this area. The entire USVI sample of examinees were very weak in their ability to choose an example illustrating that division is distributed over addition. The local sample displayed adequate ability in all other operations skills sampled by the test.

Geometry & Measurement- refers to the concepts which involve shapes, measurement, and logic. Students in the St. Thomas/ St. John district showed strong ability in the skill of estimating the distance between two points using metric units. St. Croix district students performed adequately in this skill.

The USVI sample, in general, showed weaknesses in the ability to determine the measurement of a shaded region and to identify two disjoint sets.

St. Croix school district students displayed weaknesses on the following concepts:

a) Identification of the missing number in and ordered pair

b) choosing a figure having a right angle

c) solving a logical problem using Venn diagrams.

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St. Thomas/St. John district students displayed adequate achievement in these skills.

The entire USVI sample showed adequate achievement in the following areas:

a) identification of the number of the empty set

b) distinguishing quadrilaterals from other geometric shapes.

c) solving elementary logic problems

d) sing similar triangles

e) identifying line segments

f) recognizing description of line segments

Mathematics Computations

Item Analysis

Item #16- This item showed poor discrimination with the St. Croix sample (d=.05). While students in both districts found the item to be approximately equal in difficulty (p=.32 in the St. Thomas/St. John district vs p=.34 in the St. Croix district), it was found that examinees in the upper 27 % of the St. Croix district sample were less likely to score correctly on it than those in the St. Thomas/St. John district (41% vs 46%). In fact the upper and lower portions of the St. Croix district were almost equally divergent in their probabilities of scoring correctly on the item (41% vs 36%). There seems to be the same discrimination between the two upper groups as there is between the upper and lower St. Croix district groups. The item requires examinees to examine the sum of two fractions in the 1/N + 1/N+1 and to determine whether

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this sum is greater than, equal to, or less than one. The majority of the students scoring incorrectly chose "greater than" as the correct answer in both districts. The item seems clear and unambiguous, and it is very likely that this poor discrimination is simply a chance event.

Item #17- this was a very difficult item for the local sample of students (p=.17). It required examinees to compare two fractions in the form n/m and n/m-1 and to determine whether the first was less than, equal to, or greater than the second. Most students who scored incorrectly chose "less than"as the correct response.

Summary of Student Skills

Knowledge of primary facts and solution of simple, mathematical sentences. Students from both school districts displayed adequate skills on items testing the following skills:

a) deriving two addition facts

b) deriving two subtraction facts

c) deriving two multiplication facts

d) multiplying within parentheses, then adding

e) relating two products with a common factor and an unequal second factor

f) deriving division facts with and without remainders

g) multiplying a three digit factor with a medial zero by a one digit factor

ST. Thomas/St. John examinees showed weak performance on the following skills while St. Croix examinees displayed adequate achievement on them:

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a) comparing two fractional representations of a whole number.

b) comparing the value of a decimal fraction with a common fraction.

St. Croix district examinees showed weak performance on the following skills while St. Thomas/St. John examinees displayed adequate achievement on them:

a) recognizing a numeral distributed into two factors

b) simplifying an expression within parenthese before performing other operations.

Examinees in both districts showed weak achievement in the following skills:

a) adding two unit fractions with different denominators

b) comparing values of two common fractions with equal numerators.

c) naming improper fractions as "mixed numbers.

Addition and subtraction algorithms-this set of skills involves the use of a series of prelearned steps for finding sums and remainders.

Examinees from both districts showed at least adequate skills on all objectives tested in this area. Strong skills were demonstrated on the following objectives:

a) subtracting a three digit subtrahend from a 4 digit minuend renaming tens and hundreds with a disappearing left digit.

b) adding a broken column of four addends with renaming.

Examinees from both districts displayed adequate skills in the following areas:

a) finding the value of a sentence placeholder by subtraction

b) finding the minuend in a horizontal algorithm when the subtrahend and the remainder are known

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c) subtracting a four digit subtrahend from a five digit minuend, with zero in the minuend and renaming in all positions

Multiplication and division algorithms-this set of skills involves the use of a series of prelearned steps for finding products and quotients.

Examinees in both districts displayed at least adequate skills on all the objectives tested in this area. They showed particularly strong skills in the following areas:

a) multiplying a two digit numeral by a one digit multiplier, renaming ones

b) dividing a three digit numeral by a one digit divisor, renaming tens

c) multiplying a three digit numeral by a two digit multiplier with zero in the multipliciand, renaming ones and tens

St. Thomas/St. John school district examinees showed particularly strong skills on the following objectives, while St. Croix district examinees showed adequate skills on them:

a) multiplying two three digit numerals, with zero in the ones position of the multiplier and renaming

b) multiplying a three digit numeral by a two digit multiplier with renaming

St. Croix district examinees showed particularly strong skills in the area of dividing a two digit numeral by a two digit divisor while St. Thomas/St. john district examinees showed adequate skill on this objective.

All USVI examinees showed adequate skills in the following areas:

a) estimating the value of a quotient when the dividend and divisor are known

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b) dividing a four digit numeral by a one digit divisor obtaining a quotient with zero in the tens place

c) dividing a two digit numeral by a one digit divisor obtaining a quotient with a remainder

Common fractions-St. Croix district examinees showed particularly strong ability in finding the least common denominator for three fractions with unlike denominators. St. Thomas/St.John district students snowed adequate skill in this area.

USVI examinees showed adequate skill in adding two fractions having common denominators and a sum less then one. They showed weak skill in finding a unit fraction of a multiple of a denominator.

Mathematics Applications

Item Analysis

All items showed acceptable discrimination indices except the following.

Item #26- This item sets up a one to many relationship while supplying inadequate data. Examinees are required to recognize the piece of data which would be needed in order to solve the problem. The item was only moderately difficult for the local sample of students (p=.43). It is likely that the low level of discrimination seen here is a result of the item requiring a different type of skill than the others tested on the examination. All other items required students to solve word problems or interpret graphs. In short, the intercorrelation between this and other items is probably low for this sample of students. One explanation for this is that the skill is not specifically taught as part of the USVI math curriculum, but

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may be learned, independently, by many students.

Item #36- This item discriminated satisfactorily among St. Thomas/St. John district examinees, but unsatisfactorily among St. Croix school district examinees. This was a very difficult question (p=.11) for all St. Croix examinees and this would account for the low level of discrimination.

Item #38- This was a very difficult item for the local sample of examinees (p=.16) and this would account for the low level of discrimination observed.

Item #40-This was also a very difficult item for the local sample of examinees (p=.11) and this fact most likely accounts for the low level of discrimination which was found.

Summary of Student Skills

Selection of appropriate operation-These items tested the ability of examinees to choose the mathematical operation required to solve a word problem.

USVI examinees showed adequate ability in choosing the operation for finding the total number of objects expressed in different measures of quantity. They showed weak skills in their ability to choose the appropriate operation for finding:

a) a number of equal units by dividing

b) "how many" of a unit number by dividing

St. Croix district students displayed weak skills in their abilities to determine the appropriate operation for finding.

a) specific rate by division

b) finding the remainder by subtraction

c) the rate per unit of time by multiplication.

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St. Thomas/St. John examinees showed adequate achievement in these skills.

Analysis and development of solution designs- These items required students to carry out the following series of steps: 1) determine the operations needed to solve a word problem, 2) order the operations, and 3) carry out the operations in the appropriate manner in order to arrive at a correct solution.

Examinees in both school districts showed adequate ability on the following objectives:

a) adding and subtracting in a two step sequence

b) translating verbal problems into mathematical sentences

c) determining correct change by adding and subtracting

St. Thomas/St. John school district examinees showed weak skills in the ability to determine what additional information is needed to solve a word problem. St. Croix district examinees showed adequate skills in this area.

St. Croix district examinees showed weak skills in the following area while St. Thomas/St. John examinees displayed adequate skills:

a) rounding three prices to estimate total price

b) determining and analyzing specific rate

Examinees in both districts showed weak skills on the following objectives:

a) multiplying and adding in a two step sequence

b) rounding price of item and estimating cost for a number of items

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c) multiplying and subtracting in a two step sequence

Rate and Scale Problems- These items involve solving word problems dealing with the compulation of rate of change and the use of map scales.

Examinees in both sc districts showed adequate skills in determining what percent of a figure is shaded.

St. Croix school district examinees displayed weak skills in determining a specific rate based on an average while St. Thomas/St. John examinees showed adequate achievement in this skill.

Examinees in both school districts showed weak achievement on the following objectives:

a) determining specific rate

b) finding a unit fraction of a number

c) finding 50% of a given amount of money

d) finding a total when the part of its fractional representation of the whole is known

e) interpreting a map scale to find relative distances

f) expressing part of a total as a fraction

Measurement- Students in both school districts showed weak achievement on all of the objectives tested in this area. They were:

a) adding times expressed in hours and minutes

b) converting standard units of linear measure

c) finding the area of a region

d) converting standard units of liquid measure

e) subtracting two measures and converting into another unit of measure

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Graph Reading and Interpretation

Examinees in both school districts displayed adequate achievement in using bar graphs to make comparisons.

St. Croix school district examinees showed weak achievement in the following areas:

a) finding the difference between two dates in a table

b) using a bar graph to determine specific information

St. Thomas/St. John school strict examinees showed adequate achievement in the above two areas.

Examinees in both districts showed weak ability in using bar graphs to combine frequencies.

Spelling

Item Analysis

All items on the spelling test functioned appropriately for examinees in both school districts.

Summary of Student Skills

Homophones- These are words which sound the same, but have different meanings and are spelled differently. On these items students had to determine the appropriate form of the homophone from content and identify its correct spelling.

Examinees in both school districts showed adequate skills in distinguishing between the following homophones:

a) modal would instead of noun wood

b) noun mind instead of verb mined

c) verb heard instead of noun herd

d) noun tide instead of verb tied

e) adjective plain instead of noun plane

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St. Croix district examinees showed weak abilities to distinguish between the following homophones:

a) verb seems instead of noun seams

b) noun tier instead of verb tear

St. Thomas/St. John district examinees exhibited adequate skills on these objectives.

Students in both districts were weak in distinguishing the verb sealing from the noun ceiling.

Phonics- These objectives dealt with spelling skills that were a function of the examinees' ability to use phonetic rules.

Examinees from both school districts showed particularly strong skill in identifying misspelled words where /e/ is spelled e instead of ea.

St. Thomas/St. John district examinees showed particularly high ability in identifying misspelled words where /en/ is spelled en instead of eon. St. Croix examinees displayed average ability on this skill.

St. Croix district examinees showed particularly high ability in identifying misspelled words where

a) a syllable is omitted

b) /en/ is spelled en instead of on

c) one letter of a double consonant is omitted

d) /el/ is spelled al instead of le

St. Thomas/St. John students showed adequate abilities in these skills.

Examinees in both districts showed adequate ability in

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identifying misspelled words where

a) the schwa syllable is omitted

b) /i/ is spelled i instead of ui following /g/

c) the schwa sound is omitted

d) the vowel digraph r is misspelled

e) /k/ is spelled ck instead of c

f) ie is reversed

g) /e/ is spelled a instead of i

h) a "silent" letter is omitted

i) /s/ is spelled s instead of c

j) /s/ is spelled se instead of ce

k) /s/ is spelled c instead of s

l) /ks/ is spelled xs instead of x

m) p is omitted in (m (p) xY cluster

n) consonant letter is doubled unnecessarily

St. Thomas/St. John examinees showed weak ability to identify misspelled words when a final /n/ is spelled in instead of ine. St. Croix examinees showed adequate ability in this skill.

Word Building- St. Thomas/St. John examinees demonstrated particularly strong ability in identifying misspelled words in which

a) the final consonant letter is doubled when adding-ing

b) the morpherem /en/ is spelled in instead of en

c) -s instead of -es is added to the plural form.

St. Croix school district examinees displayed adequate performance levels on these skills.

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St. Croix district examinees demonstrated particularly strong skills in identifying misspelled words in which

a) final e is omitted when adding -s to form the plural

b) the final l is omitted when adding the suffix -ly

c) the plural is formed without changing f to v

d) -ed is added without doubling the final consonant letter

St. Thomas/St. John examinees showed adequate performance levels on these skills.

Examinees in both districts showed adequate skills in identifying misspelled words in which

a) y is changed to i when adding -ed

b) a consonant letter is deleted from a prefix assimilation

c) final e is retained when adding -ing

d) a suffix is added without changing ye to i

e) morpheme /er/ is spelled er instead of or

f) compound is formed without changing all to al

g) -ing is added without doubling the final consonant letter

h) suffixes -ery is confused with -ary

i) suffix is added without doubling final consonant

j) plural is formed without changing y to i

k) -ed is added without doubling final consonant letter

l) the suffix -ours is spelled -us

Language

Item Analysis

All items on the Language test descriminated satisfactorily except the following. Item #2 was a moderately easy item for

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St. Croix students (p=.79) which required students to recognize that a comma needed to be placed between the day of a month and the year. Examinees in the lower 27% of the distribution were almost as likely as those in the upper 27% to score correctly on this item (.68 vs. 77). There appeared to be no pattern of responses and it is likely that this skill simply does not correlate highly with those measured on other parts of the test.

Items #3 & 4 were particularly difficult for St. Croix examinees (p=.14 and .19, respectively) and this could account for the low levels of discrimination observed. These items dealt with the use of commas to set off parenthetical expressions.

Item #6 was a particularly difficult one for St. Croix students 9p=.30). Only three more students in the upper group scored correctly on this item than in the lower group. It dealt with the placement of a question mark at the end of a quotation.

Item #10 was a difficult item for USVI students (p=.34). Students in the upper 27% of the distribution of scores were only slightly more likely to score correctly than those in the lower 27% (p=.39 vs .34). This item dealt with the formation of past participles from infinitive verb forms.

Item #11 was a moderately easy item (p=.78) for St. Thomas/St. John examinees. Examinees in the lower group were not much less likely to score incorrectly on this item

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than those in the upper group. It involved the choosing of the correct present perfect tense of the verb "to choose." The distractor "have chose" was chosen almost always by examinees who scored incorrectly. The item seems to be operating properly, but it does not correlate highly with most other items on the test.

Item #21 was a very difficult item for St.Croix school district examinees (p=.19). This accounted for the low discrimination index observed for this item which test students' knowledge of the use of quotation marks to set off direct quotes.

Item #22 was a moderately difficult item for St. Croix students (p=.43), but examinees in the upper and lower 27% of the distribution were equally likely (p=.50) to score correctly on this item which tested to see if students knew how to deal with indirect quotations.

Item #33 showed poor discrimination for St. Croix district students (d=.14) The item response pattern suggests a reason for this. The item purports to measure whether students can identify the appropriate use of the present perfect tense of the verb "to become." The item reads: "With power in most U.S. towns, the electric clock _____ became very common." The choices presented were: 1) became, 2) has becomed, 3) has became, and 4) has become with alternative #4 scored as the correct choice. A large number of the upper 27% of examinees who scored incorrectly chose alternative #1. Alternative #1 produces a gramatically correct sentence, but choice #4 is

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said to be correct since preceding items deal with the history of electricity. Most interesting is the fact that item #33 appears at the head of a left hand page in the test booklet and students must remember the flow of questions or look back to the previous page. Nowhere in the directions are examinees told about relationships between items. In summary, this item contains two correct answers and this could account for the poor discrimination which was observed.

Item #40 was a very difficult (p=.23) item for St. Croix district examinees. This would account for the low level of discrimination that was observed.

Item #42 was a very difficult item for USVI students (p=.14). The item examined students' ability to choose an appropriate verb to complete the sentence, " The loudspeaker _____ his voice into the crowd." The choices were 1)sputtered, 2) splashed, 3) stressed, 4) boomed with alternative #4 scored correctly. The majority of examinees chose alternative #3. This accounts for the low level of discrimination observed. There may be something in the general language use of USVI students that could explain these responses.

Summary of Student Skills

Capitalization conventions-These are skills which involve examinees' ability to recognize appropriate uses of capitalization of words.

St. Croix district students showed weak skills in recognizing

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the appropriate use of capitalization at the beginning of a direct quotation. St. Thomas/St. John district examinees displayed adequate skills in these areas.

USVI examinees showed adequate skills in the recognition of capitalization conventions in the following situations:

a) at the beginning of a principal clause following an introductory clause

b) with a common noun

c) at the beginning of an indirect quotation

d) with the name of a building

Punctuation conventions- These skills involve the ability to recognize the appropriate use of punctuation in a given situation.

St. Croix school district examinees displayed weak ability to recognize a siutation where quotation marks and a comma are used to set off a direct quotation from the rest of a sentence. St. Thomas/St. John examinees showed adequate performance in this skill.

USVI students displayed adequate skills in recognizing the appropriate use of punctuation where:

a) a comma is used after an introductory adverb clause

b) a comma is used between a day and a month

c) commas are used to set off parenthetical expressions

d) a question mark is used at the end of an interrogative sentence and it is enclosed in quotation marks

e) no punctuation marks are used to set off indirect quotations

f) commas are used to separate ideas within series

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Usage conventions- This refers to skills involving the ability to choose appropriate forms of words depending on the content of the sentence in which they are used.

USVI students showed strong ability to choose an appropriate set of words consisting of a demonstrative pronoun and an auxiliary verb from content.

St. Thomas/St. John district students displayed strong ability in selecting the correct form of the present perfect tense of the verb "to choose" from content. St. Croix district students showed adequate skills in this area.

St. Croix district students showed strong skills in the following usage situations:

a) selecting the past participle of the verb "to burn" and the past perfect progressive form of the verb "to speak" from content

b) selecting the tense of the verb "to invent" and avoiding a double negative in content.

c) selecting the past participle of the verb "to bring" from content.

St. Thomas/St. John district students displayed adequate skills in these areas.

U.S. Virgin Islands students displayed low ability in the following areas of usage:

a) selecting an appropriate comparative adjective from content.

b) selecting the past tense of the verbs "to draw" and "to drive" from content.

c) selecting an appropriate adverb from content.

St. Thomas/St.John school district examinees displayed

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poor skills in being able to select the present perfect tense of the verb "to become" from content. St. Croix district examinees showed adequate ability in this skill.

St. Croix school district examinees showed poor skills in the following usuage areas:

a) selecting the past participles of the verbs "to Know" and "to come" from content.

b) selecting the past tense of the verbs "to know" and "to begin" from content.

St. Thomas/St. John school district examinees scored adequately in these areas.

USVI students all performed adequately in the following usage areas:

a) selecting the present perfect form of the verb "to take" from content.

b) selecting the negative forms of a sentence avoiding double negatives

c) selecting the past participles of the verbs "to break" and "to eat" from content

d) selecting the past participle of the verb "to begin" from content

e) selecting the past perfect tense of the verb "to drink" in content

f) selecting the past participles of the verbs "to freeze" and "to go" in content

g) selecting the appropriate reflexive pronoun in content

h) selecting a verb to agree with a subject in number and to avoid a double negative

i) selecting a pronoun form in a compound subject and identifying the proper word order for a proper name and pronoun

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j) selecting the present perfect tense of the verb "to write" from content

k) selecting the past participle of the verb "to take" and the past tense of the verb "to choose" in content

l) selecting the passive voice form of the word "to drive" from content

m) selecting the appropriate verb to agree with a subject in number and the appropriate comparative adjective to modify a plural noun

Language sensitivity: Word sensitivity- These skills relate to the ability of examinees to perceive appropraite usage of words in a particular context.

USVI examinees showed adequate skills in the ability to complete a sentence by selecting an appropriate clause. They showed weak skills in the ability to complete a sentence by selecting an appropriate independent clause.

St. Croix district examinees showed strong skills in the ability to complete a sentence by selecting an appropriate verb phrase. St. Thomas/St. John examinees showed weak skills in this area.

St. Thomas/St. John [illegible] district examinees showed weak abilities to complete sentences by selecting an appropriate:

a) preposition

b) posessive pronoun to begin with an antecedent

c) verb

d) predicate adjective

Language sensitivity: Sentences- USVI examinees demonstrated adequate skills in the following areas:

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a) choosing the phrase which completes a sentence fragment

b) recognizing a complete sentence

c) recognizing that a group of words forms a single complete sentence

d) recognizing that a group of words forms two or more sentences

e) recognizing that a group of words do not form a complete sentence

Dictionary skills- These consist of the abilities needed to locate words in a dictionary and to use the dictionary entry to find needed information.

USVI examinees displayed adequate ability in using sample dictionary entrees to:

a) determine the appropriate meaning of a word in content

b) identify the part of speech of a word in content

c) determine syllabication

d) determine the pronounciation of a word and choose a word that rhymes with it

e) indicate the appropriate content for a particular meaning of a word

f) identify guide words using alphabetical order

USVI examinees showed weak skill in their ability to use a sample dictionary entry to determine the pronounciation of a word.

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Discussion

A detailed summary of overall strengths and weaknesses will be presented in a final report on conclusions and recommendations. However, at this time a number of points can be made concerning test performance and academic achievement of USVI examinees across grades.

The problem of examinees having insufficient time to complete the reading test is still evident in grade six examinees. The fact that it ceases to exist in grade four and two sheds some light on the nature of the causes of this phenomenon. In the grade four test (Primary Level III) only the second half of the test involves items where students were required to read lenghthy passages and answer questions based on them, while the second grade test (Primary Level I) has no such items. this seems to reinforce the idea that local examinees may either require more time to complete these items because they are slower readers or must refer back to the passages more often to answer questions, or that they tire easily given these type of questions and do not finish the test. Unlike the situation with secondary students it was noticed that when the analysis was restricted to items which two-thirds or more of the examinees, USVI students performed well on higher level reading objectives such as global and implicit meaning, although they still were weak in determining inferential meaning.

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Secondary examinees showed difficulty in all reading areas besides explicit meaning.

As was the ease with secondary examinees, examinees in grades four and six show weak skills in the area of standard English vocabulary. In grade two, however, St. Thomas/St.John district examinees showed adequate skills in recognizing vocabulary that would be found in subject matter material in school, while St. Croix examinees were weak in these vocabulary areas. Examinees from both districts showed weakness in general standard English vocabulary. The fact that at least part of the local sample of students showed adequate vocabulary achievement in subject matter areas may be the function of the emphasis place on these areas in schooling. It suggests a need to explicitly teach all areas of vocabulary.

Grade two examinees seem to show adequate skill in the use of phonetic skills for word building. This skill seems to deteriorate in grades four and six with grade four students having difficulty discriminations among certain vowel sounds and grade six examinees showing difficulty discriminating among consonant sounds, as well. This brings to question the effectiveness of the instructional reading program in the intermediate grades and the opportunity examinees have to practice and have these phonics skills reinforced.

In mathematics, the pattern seen with secondary students (see Poliss, 1982b) is evident with elementary students, as well. Students seem to have adequate computational skills

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and seem to have good grasp of basic number facts and algorithms. They have moderate skills in dealing with one step word problems, but are very weak dealing with operations and word problems which require more than one step in order to arrive at solutions. USVI examinees also seem to have weak skills in seeing relationships between numbers and geometric shapes and this phenomenon is obvious across all grades.

Local examinees display excellent spelling skills and this phenomenon is also seen across all grades.

The pattern that was observed by Poliss (1982b, pp97-98) where secondary students seemed to achieve higher on objectives in the lower three levels of Bloom's Taxonomy of educational objectives (Bloom,1956) was also observed across elementary students, as well. Jensen (1968) suggested a paradigm which seems to fit this observed pattern when he suggested his level I and level II abilities idea. Level I abilities would be those which require rote memorization and simple manipulative skills (the first three levels of the taxonomy) while level II skills require higher level reasoning (the higher three levels of the taxonomy). Jensen postulates that differences in the ease with which persons learn level I abilities are smaller between socioeconomic groups than differences in the ease with which persons learn level II abilities with lower socioeco class persons having the greater difficulty in learning these skills. USVI examinees appear to have achieved at least adequately on objectives which would be classified in the lower three categories of the taxonomy (i.e. knowledge, comprehension, and application).

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They achieved less well on objectives that would be classified in the upper three categories (analysis, synthesis, and evaluation). Local examinees seem to achieve well on objectives which can be achieved by memorization (knowledge objectives) or the application of a general procedure, rule, or algorithm (comprehension and application levels). They scored extremely well in spelling and single step multiplication computations. They scored lower on items requiring them to organize data, choose information relevent to solving problems, and to choose a series of rules and/or algorithms to use in solving problems (analysis, synthesis, and evaluation). Note the weaker achievement in mathematics applications problems, multistep computations, and the use of dictionary entries, for example-This phenomenon is apparent as early as grade two and becomes more obvious as the grade level of examinees increases.

Another area that may be fruitful to examine is the area of instruction. While the Stanford Achievement Test seems content valid based on an analysis of written curricula, texts, and what teachers and administrators say they are doing in classrooms, the poorer showing of examinees on higher level objectives may be a function of the emphasis placed on these objectives during instruction. If these higher level objectives are not taught in the classroom or are taught in such a way as to send a message to students that they are not very important, low achievement on these objectives is a plausible outcome. For instance, if classroom tests only evaluate low level objectives, students quickly learn that these are the

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really "important" things for them to learn. Likewise, if the amount of time spent dealing with these objectives in the classroom test only evaluate low level objectives, students quickly learn that these are the really "important" things for them to learn. Likewise, if the amount of time spent dealing with these objectives in the classroom is disproportionate to that spent on higher level objectives, a similar message goes out to examinees. It may be worth knowing precisely what is going on in classrooms during instruction.

Finally, as with the secondary students, it was observed that elementary students omitted itmes that they had an opportunity to attempt to respond to. Although the directions did not tell students this, the raw score of an examinee was the number of items which he or she answered correctly. There was no correction for guessing (i.e. no points were deducted for incorrect responses). Under these "number right" conditions, examinees should have guessed at all items they did not know the answer to in order to maximize their scores. The fact that there were omits on many items indicates that many examinees did not use this strategy. This may have been a function of inadequate test directions (i.e. the directions did not indicate the method of scoring being used. but this is a somewhat dubious assumption since most tests these examinees take are "number right" tests. Rather, the problem is most likely one of poor test taking skills and these skills can and should be taught in the classroom.

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