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ABSTRACT

This study looks at predicting the length of time the students in the Dallas Public School District (Texas) will remain in a limited English program. Student growth rates determined from 3 years of data were analyzed and compared to expected growth rates identified by the "Woodcock-Munoz Language Survey (WMLS)." The WMLS annual expected scores are based on initial W-scores, which have varying growth rates. With this growth pattern in mind the district data were divided into three groups that had different average expected growth rates. The study then compared the language proficiency growth rates of students in Bilingual English (BE) and English as a Second Language (ESL) programs. Three conclusions were found in light of the standard 1-year gains. First, it is necessary for data to be categorized into groups so that gains of the individual categories can be seen and not masked by one total mean. Second, while the low category exceeded expectations and the middle and high categories did not, students in any category will not reach level 4 (English proficient) in 3 years. This result was not affected by the different programs. Third, the majority of low-scoring first-year students will not reach level 4 when projecting an additional 5 to 7 years, however, the majority of middle and high scoring students should at least reach the 3-4 band, if not level 4. Only with additional years of data can these conclusions be validated. (Contains 14 figures, 3 tables, and 4 references.) (Author/SLD)

When Can LEP Students Exit a BE/ESL Program: Predicting Academic Growth Using a Test that Measures Cognitive Language Proficiency

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Theresa Urrabazo
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When Can LEP Students Exit a BE/ESL Program: Predicting Academic Growth Using a Test That Measures Cognitive Language Proficiency[1]

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This study looks into predicting the length of time the students in our district will remain in a limited English program. Student growth rates determined from three years of data, were analyzed and compared to expected growth rates identified by the *Woodcock-Muñoz Language Survey (WMLS)*. The *WMLS* annual expected gains are based on initial W-scores, which have varying growth rates. With this growth pattern in mind the district data were divided into three groups which had different average expected growth rates. The study then compares the language proficiency growth rates of students in BE and ESL programs. Three conclusions were found in light of the standard one-year gains. One, it is necessary for data to be categorized into groups so that gains of the individual categories can be seen and not masked by one total mean. Two, while the low category exceeded expectations and the middle and high categories did not, students in any category will not reach level 4 (English proficient) in three years. This result was not affected by the different programs. And three, the majority of low-scoring first year students will not reach level 4 when projecting an additional five to seven years. However, the majority of middle and high scoring students should at least reach the 3-4 band, if not level 4. Only with additional years of data can these conclusions be validated.

INTRODUCTION

As the accountability movement continues to be a powerful influence on the educational system, serious attention is being paid to the status of LEP students and the length of time required before LEP students become proficient enough in English to be classified as non-LEP. Expected gains in language proficiency are needed to set standards as to the annual progress being made.

This paper is a follow-up study to a paper presented at AERA, 1997, "*Notion Into Practice: A Systematic Testing Program for All LEP Students in a Large Urban District.*" In the previous study, we discussed our experience with new testing programs for LEP students and their results, our concept of inclusion of LEP students in the testing program, and the methods we used to determine the readiness of our LEP students in the District's regular testing program. We concluded that conditional inclusion is the key to our success with these measures.

[1] Paper presented at the annual meeting of the American Educational Research Association, April 13-17, 1998.

Conditional inclusion describes our testing approach which first tests all LEP students with the *WMLS*, then based on the level of proficiency, LEP students are then tested with additional tests. LEP students are tested with the English normed tests only if their English language proficiency level is a 4 or 5. We have validated that the *Woodcock-Muñoz Language Survey (WMLS)* cognitive level 4 is the level in which LEP students are English proficient and can be reclassified as non-LEP; this was based on the results from *ITBS* (median of the 40th percentile) and the state criterion test, *TAAS* (70% passing rate).

With the knowledge of how LEP students are to be included in our testing program and knowing the *WMLS* level of proficiency, we now can address the current research question. This paper uses the *WMLS* and new information given by the test developers to answer the question, "How long does it take Dallas Public Schools (DPS) LEP students to exit a BE\ESL program?" The paper first discusses a past approach used to measure DPS student growth. Then new information providing the *WMLS* expected one-year gains will be introduced along with the relationship between the expected gains and the amount of time it takes to reach a level 4. Once the expected gains are reviewed, then an explanation of the method used to conduct the study will be given and the sample of DPS LEP students will be described. These students' *WMLS* scores (W-scores) will be analyzed by grade and by program. A comparison of actual and expected gains will then be detailed using three years of actual data. Following these results, projections will be made using district scores and expected gains to determine when DPS students will reach level 4. Conclusions along with recommendations will follow.

PAST APPROACH

In the 1996-97 final evaluation of the DPS Bilingual/ESL program (Oakeley, 1997), an analysis comparing pre/post means was completed to show the amount of cognitive academic language growth. Table 1 provides the mean W-scores for DPS kindergarten through grade 6 students who had test scores for both 1996 and 1997. It can be seen that the gain for the grades with lower pre-means was greater than the gain of grades with higher pre-means, a pattern which will be further discussed later. While these data provide some insight as to how DPS students grow academically, the use of the mean score for each grade does not take into account the range

of low to high W-scores within the grades. The results were also limited in that the gains lacked a growth standard of comparison.

Table 1

Spring 1996 and 1997 *WMLS* Broad Ability Mean W-Scores and Actual Gains by Grade

Grade	N Students	Pre Mean	Post Mean	Actual Gain
KN	207	396.4	418.5	22.2
1st	3939	411.8	436.1	24.3
2nd	3622	433.5	454.5	20.9
3rd	3341	449.5	465.3	15.8
4th	3147	459.0	472.9	13.9
5th	2739	464.7	478.3	13.6
6th	2341	469.8	482.8	13.0

This study will show that student growth can not be measured accurately by using an overall mean. Also, a standard of growth, now available, will be compared against actual gains in order to see if students are performing as expected.

NEW INFORMATION-THE *WMLS* STANDARD ONE-YEAR GAIN

After the previous evaluation report was completed, during the summer of 1997, the author of the *WMLS* test met with the District and provided one-year standard expected growth rates. These expected growth rates were based on W-scores of a normed sample. It was determined that the lower the W-score, the larger the growth rate was after one year. Likewise, the higher the W-score, the smaller the growth rate was. Figure 1 provides the downward line of growth as the W-score increases.

Having the above information led to the discovery of a relationship between the *WMLS* standard one-year gains and the amount of time it takes to reach *WMLS* level 4. One has to understand that as students progress from one grade to another, a higher W-score is required to qualify for level 4. This can be compared to learning curves. Figure 2 shows how level 4 increases sharply in the lower grades and slowly flattens out in the upper grades. Included in Figure 2, is the level 3-4. This level and the band between the two levels is a current area of question and will be discussed later.

Figure 1

WMLS Standard One-Year Gains Using W-Scores

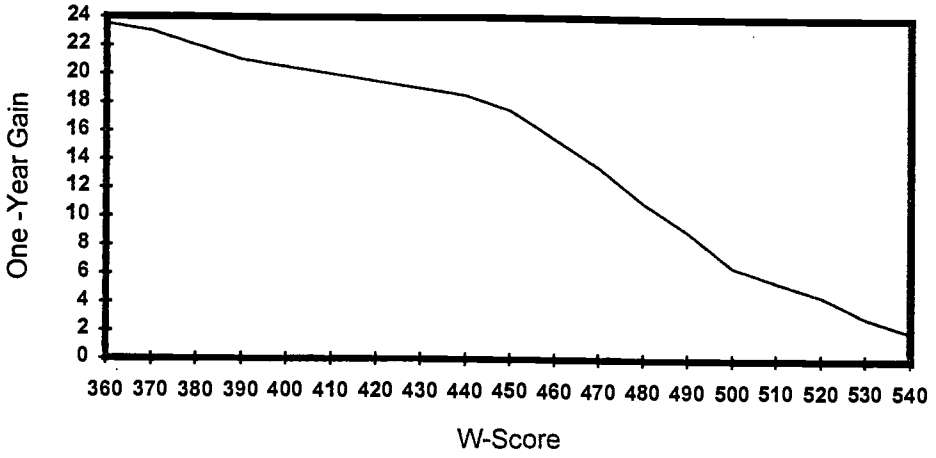
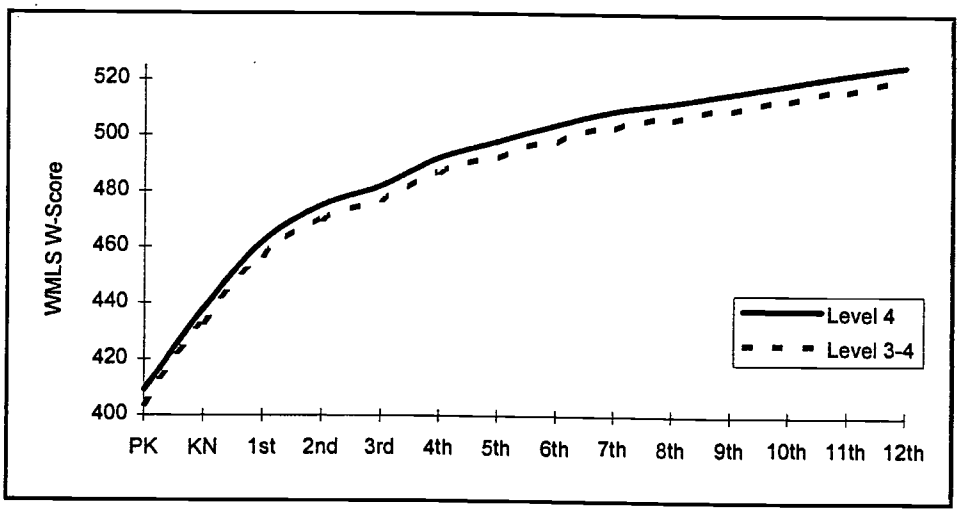


Figure 2

WMLS Broad Ability Levels 3-4 and 4 by W-Score and Grade



Since the ultimate goal is to find out when students will reach level 4, expected gains over time can now be calculated and used to determine the number of years necessary to reach the goal. This is accomplished by combining the information given in Figures 1 and 2. For example, first-grade students with an initial W-score of 410 will be expected to gain 20 points according to Figure 1. This places the students at a *WMLS* score of 430. They will then be expected to gain approximately 19 more points the following year. This addition of expected gains continues each year until the W-score reflects a level 4 in that particular grade as

determined by Figure 2. Those students who started at a W-score of 410 in grade 1 will reach a score of 512, a level 4, by the end of eighth -grade (eighth year in the program). Students scoring initially higher will reach level 4 sooner.

With the new found relationship between Figures 1 and 2, we are now ready to discuss the methodology used to determine the length of time DPS LEP students need to become proficient.

METHODOLOGY

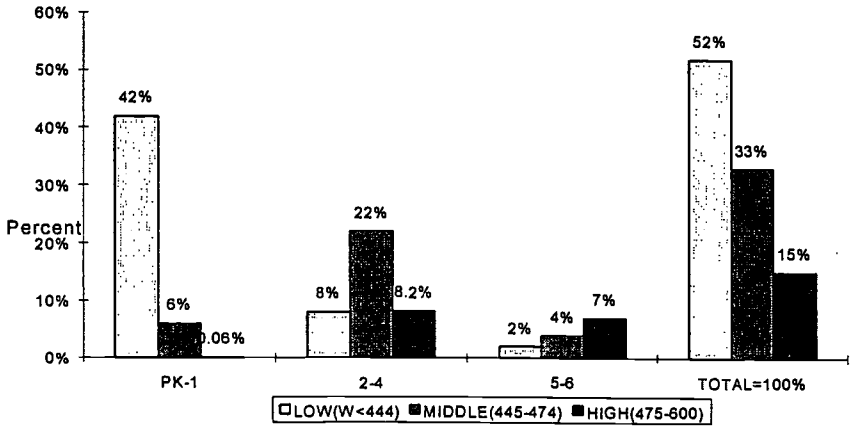
Since varying growth rates were found to be dependent on initial W-scores, students who test with the *WMLS* should be placed in a low, middle or high category in order to see if different ranges of W-scores gain as expected according to Figure 1. This will eliminate a convoluted mean and allow one to focus on the growth of a specific scoring group of students. With this in mind, this study examines three years of mean W-scores for each category. A sample was taken of 9,012 Pre-K through grade 6 DPS students having three years of W-scores. These students were then placed into one of the three categories. Each category had an approximate five point interval of gains. For example, the low category had a gain range of 18.1 to 23.5, which corresponds to W-scores less than 444 (base low was a W-score of 360). The middle category had a gain range of 12.5 to 18.0, corresponding to W-scores greater than 445, but less than 474, and the high category had a gain range of 6.5 to 12.3 which corresponds to a W-score greater than 475 (maximum W-score is 600).

Figure 3 details our sample[2] of 9,012 Pre-K through 6 students who had three years of scores. Most (52%) of the students fell into the low category and the majority of these students were in grades Pre-K though 1. The middle category contained 33% of the total group and the majority of the students in this category were in grades 2-4. The high category, consequently, had the least (15%) and the majority of these students were in grades 5-6.

[2] DPS has only used the *WMLS* for three years, with the first year only having 35% of the students tested. Since then, more than 95% of the students have been tested. Hence, the sample is reduced because of the first year.

Figure 3

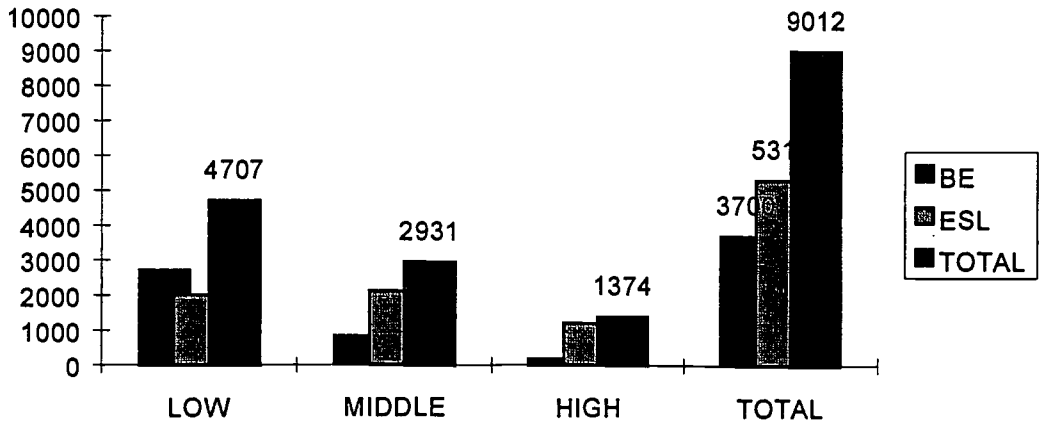
Breakdown of the Pre-K Through Grade 6 Students with Three Years of *WMLS* W-Scores by Category, N=9,012



In addition to grouping students by category, students were also classified by the their program of instruction; Bilingual Education (BE) or English as a Second Language (ESL). Figure 4 provides the same categories of students defined by their language program. The number of students in bilingual education declines as the category proceeds from low to high.

Figure 4

Students Defined by Category and by Program, N= 9,012



With the sample clearly defined, the actual yearly gains of each category were compared to the expected gains based on the *WMLS* standard from Figure 1. The following results are given by grade, category, program, and total.

RESULTS

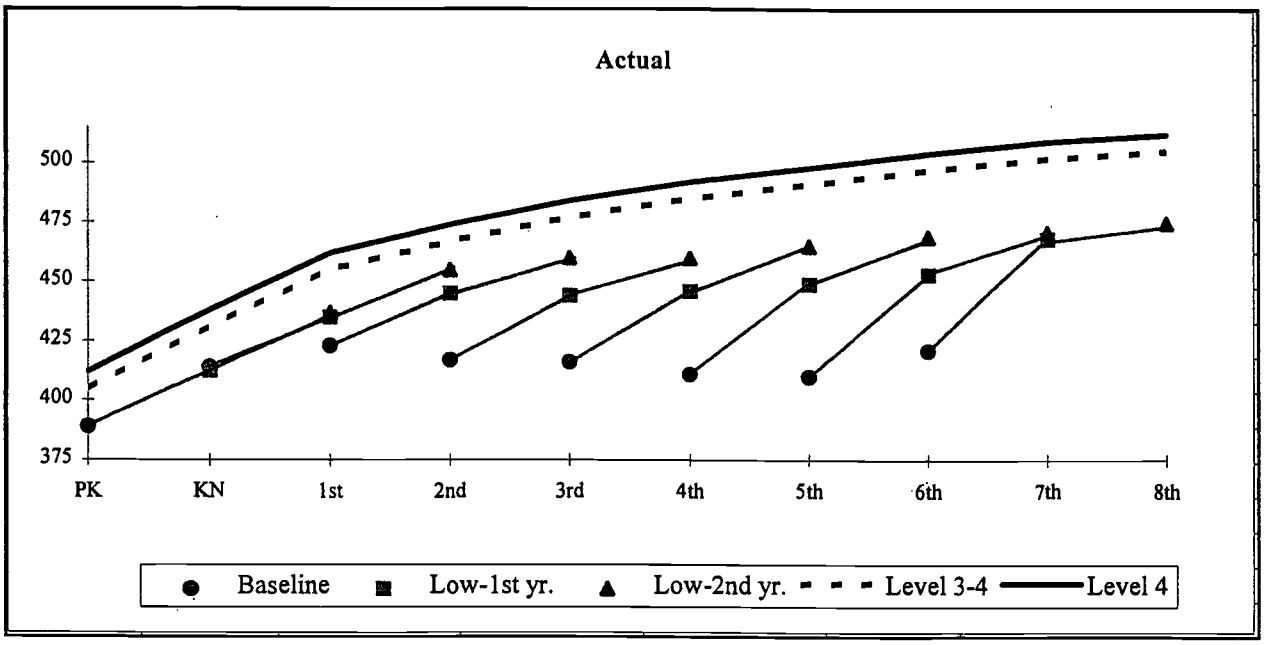
Figures 5-7 provide the three years of actual data in relation to the 3-4 and 4 *WMLS* levels. Each Figure provides a graph of the actual means for three years by grade and a second graph of the expected growth based on the initial District mean W-scores by grade for each category. Comparing the actual mean W-scores in Figures 5-7, it would be expected to see the baseline mean W-scores of each category increase; and it does. Comparing the same Figures once again, the steeper slopes seen with the lower categories and flatter slopes with the higher categories are also expected since it is now known that there would be higher gains with lower W-scores and lower gains with higher W-scores, regardless of grade. From the three graphs depicting the actual progression of student W-scores, it can also be seen that the majority of the students will not reach level 4 in three years[3] and few grades will fall into the 3-4 band, regardless of category. After examining the growth and movement of the actual scores, a comparison is now made between the graphs of the actual and expected growth rate for each category.

In comparing the actual and expected data in Figure 5, the slopes of the first-year gains seem to be steeper than the expected slopes. The slopes the second year are either the same or flatter. The data in Figures 6 and 7 are somewhat tougher to distinguish. Therefore, Figure 8 provides the results of the actual gains minus the expected gains. One can clearly see that the students who start in the low category make greater gains than expected especially in grades 3-6. However, students in the two other categories do not make gains equivalent to the expected gains. With the exception of the low category, there is very little difference in the gains made by grade. It is important to notice this pattern since the next section will analyze data by category, regardless of grade.

[3] An obvious outlier exits for the kindergarten students in the middle and high categories. The high initial W-score may be due to the small amount of students for that grade in that category. The number of kindergarten students who began in middle and high categories was significantly low.

Figure 5

Actual and Expected Mean W-Scores for Two Years of the Low Category Students by Grade



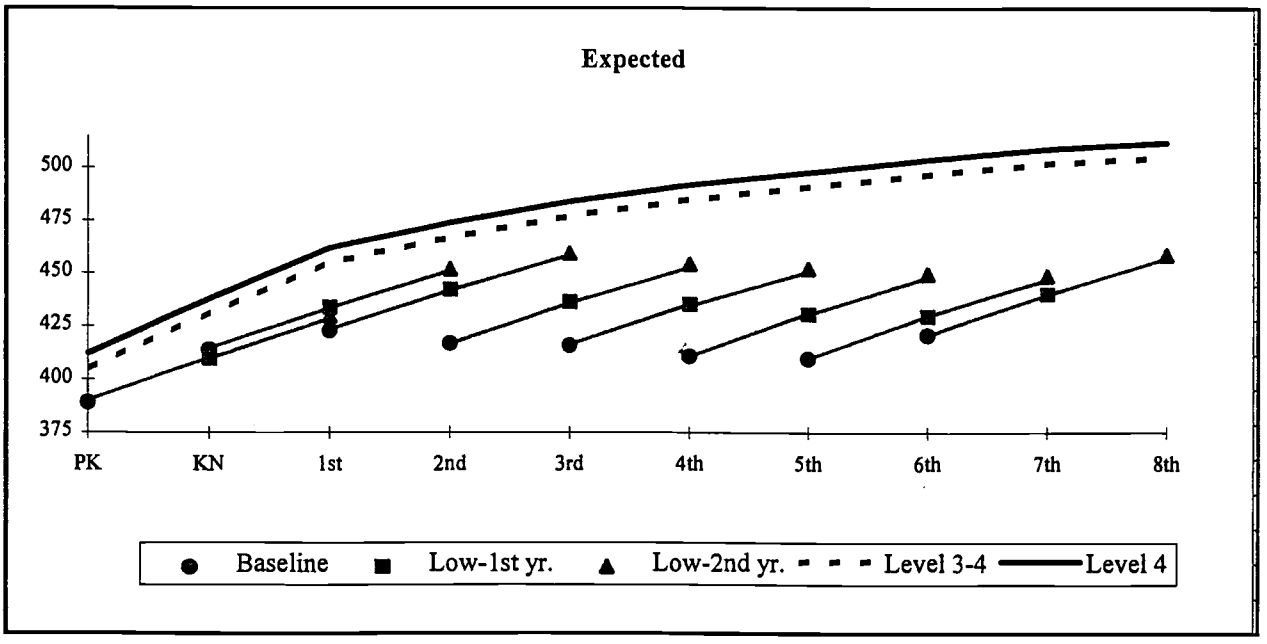
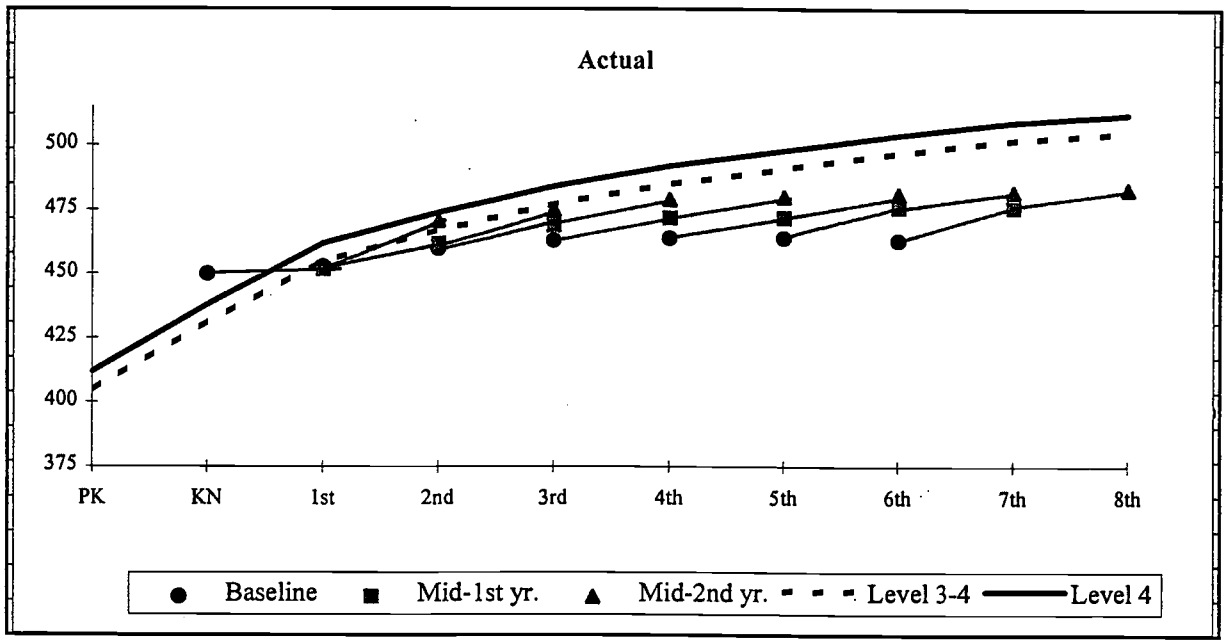


Figure 6

Actual and Expected Mean W-Scores for Two Years of the Middle Category Students By Grade



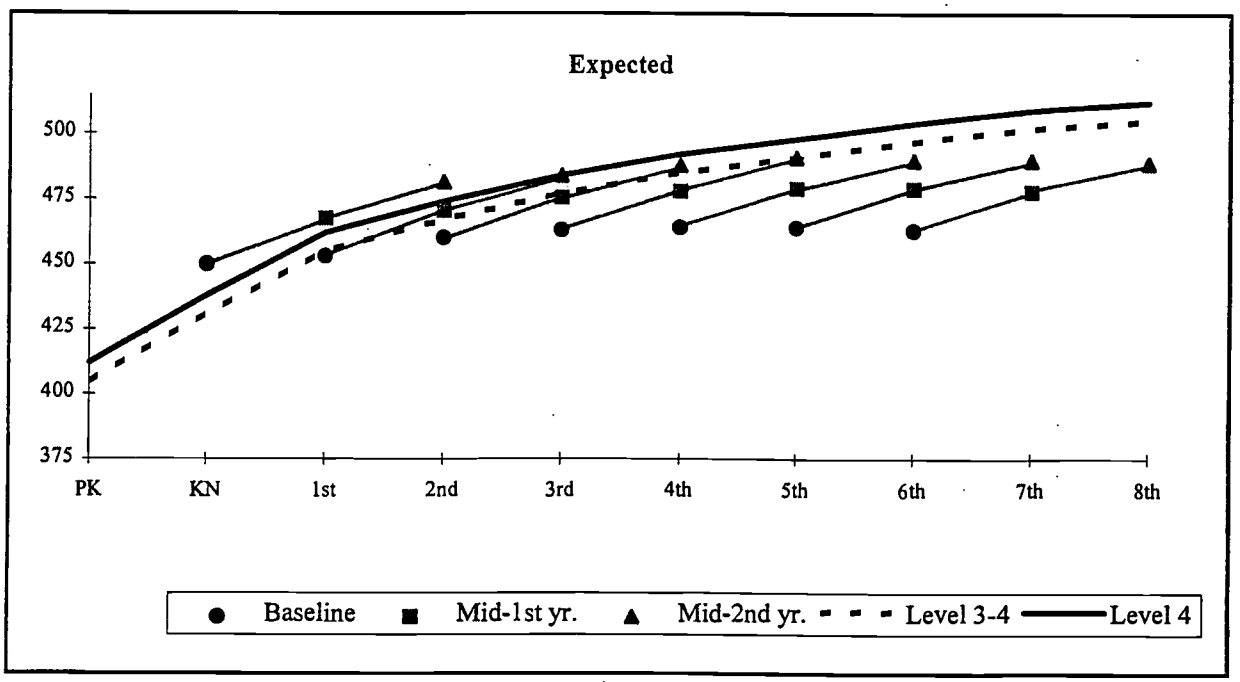
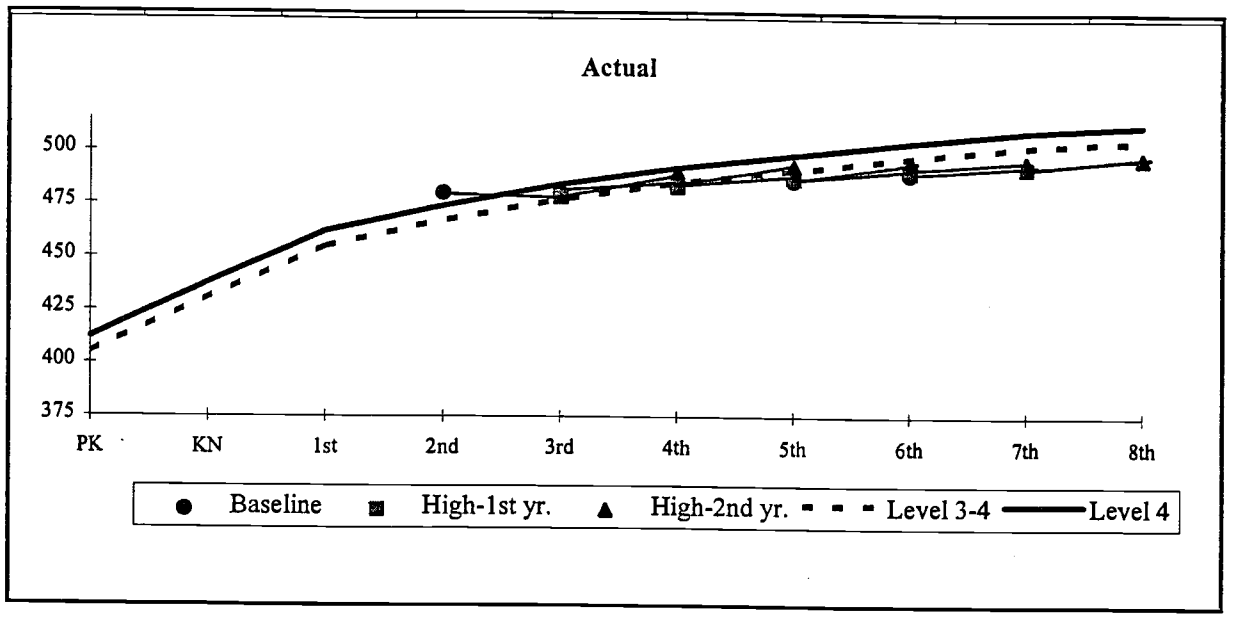


Figure 7

Actual and Expected Mean W-Scores for Two Years of the High Category Students by Grade



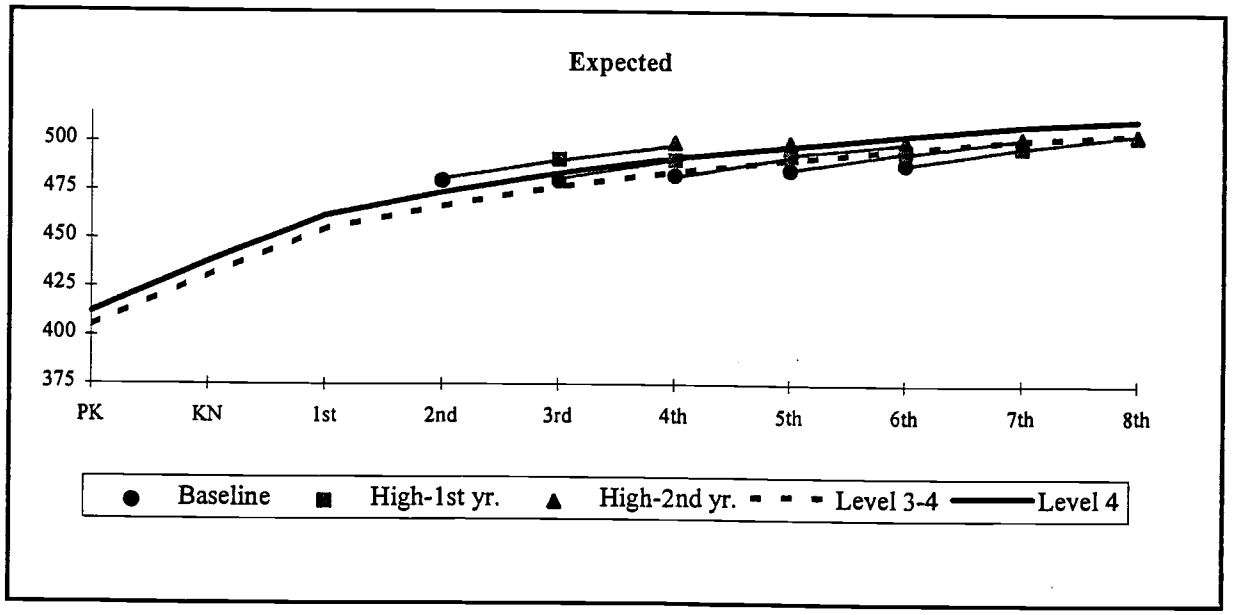
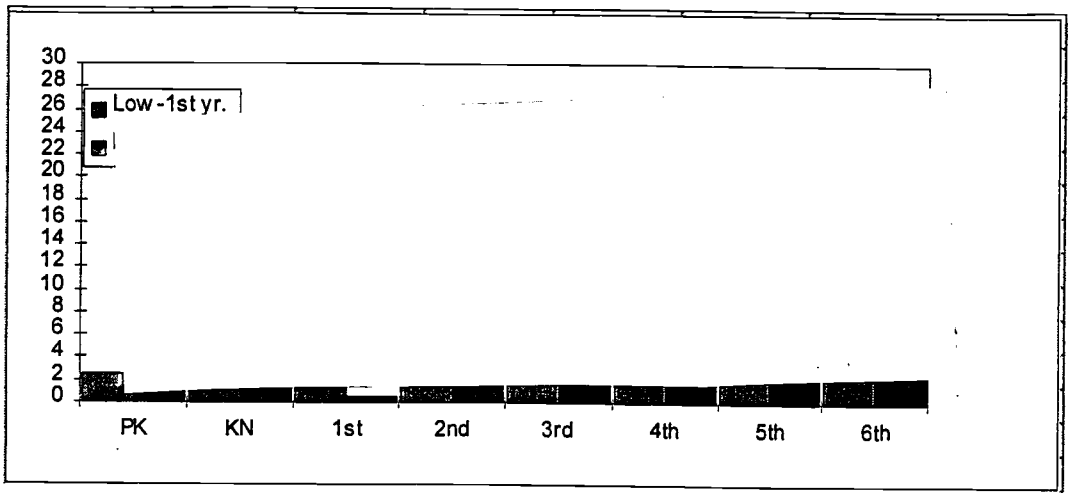
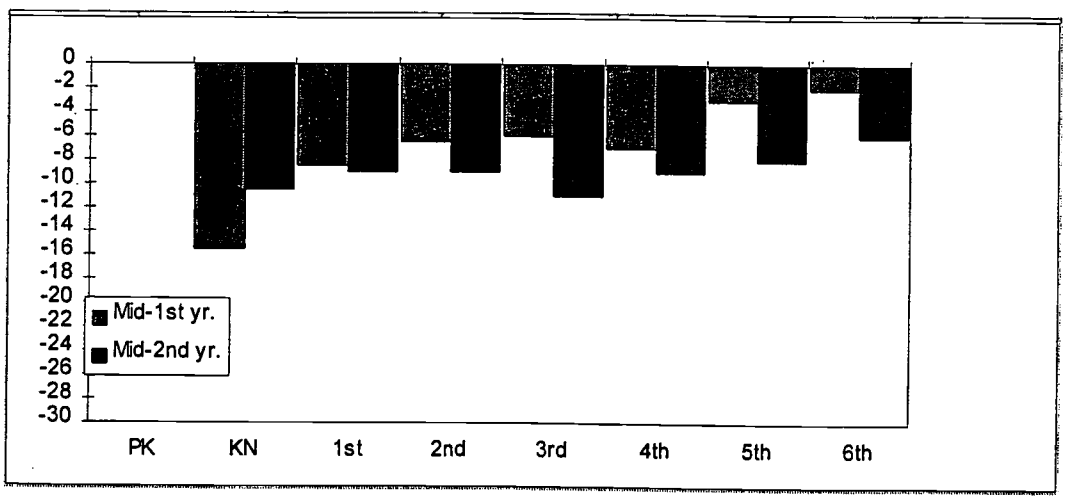


Figure 8
Actual Minus Expected Gains for Two Years
of the Three Categories of Students by Grade





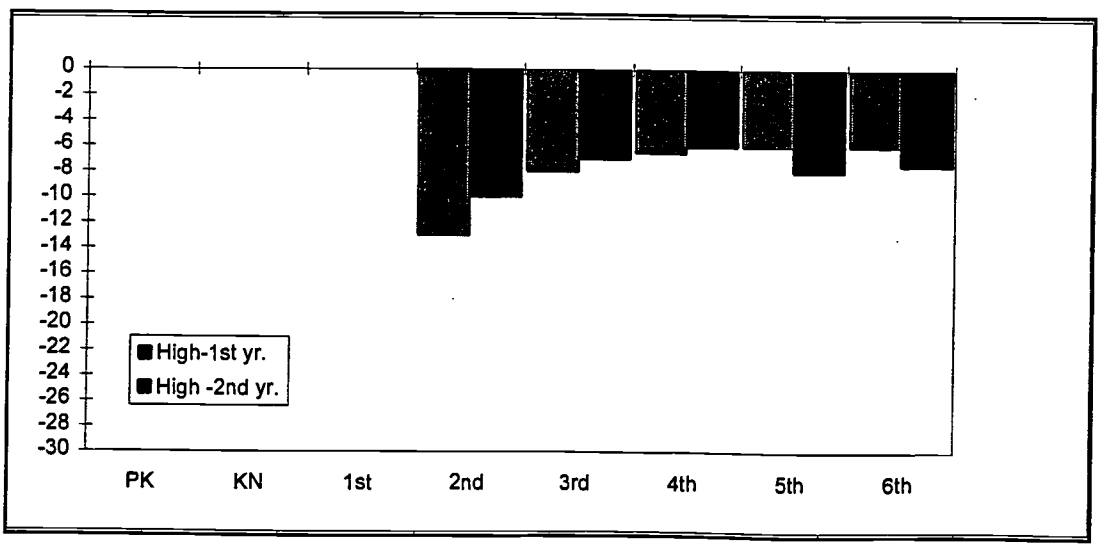
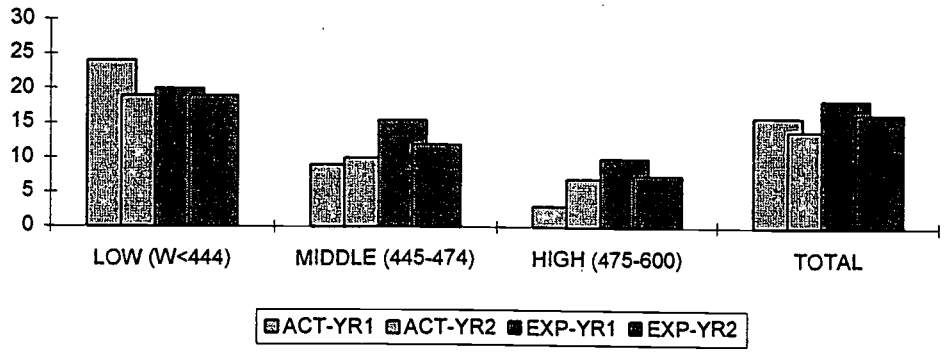


Figure 9 provides a summary of Figures 5-7 regardless of grade and a total regardless of category. Once again it can be seen that the low category exceeds the expected growth while the middle and high categories lag below expectation. It is important to note that when reviewing just the total gains (as was done in the past), one can see that only slight differences would be determined between the actual and the expected growth The results in the total differ from the results found by using the three categories and, are therefore misleading. Data must be categorized into the three categories to capture the varying rates of growth.

Figure 9

Summary of Actual and Expected Gains for the
Three categories and Total



With the current set of three data points, growth rates of DPS students exceed expected growth rates if starting very low, but otherwise fall behind. With the limited number of data points, it would be extremely difficult to conclude that the DPS students do not keep up with the expected growth rates. It can be concluded that if current patterns of growth continue, DPS students could spend more years in a program when compared to the standard growth rate patterns.

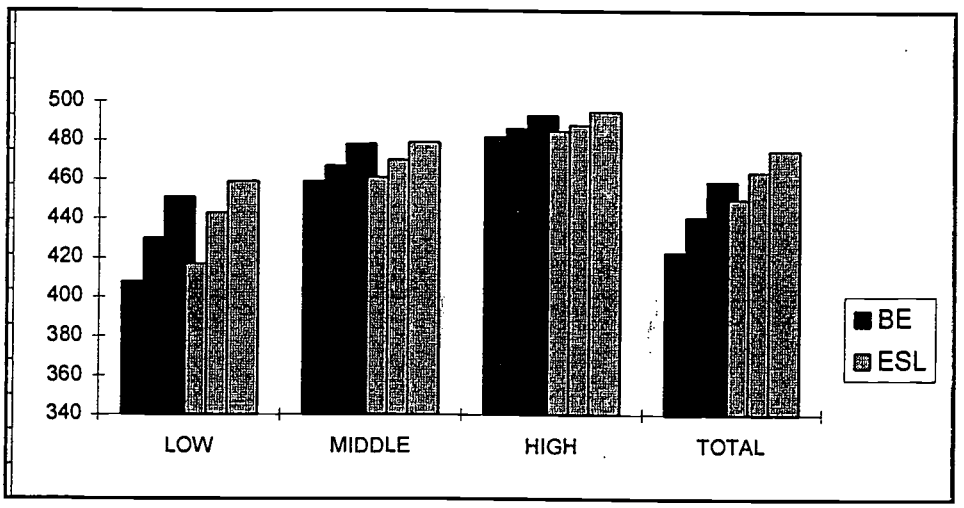
RESULTS BY PROGRAM

In the previous section Figure 8 displayed the relationship of gains by grade in which similar growth patterns were found regardless of grade for the middle and high categories. With

this in mind, Figure 10 provides the mean W-scores of each category by program regardless of grade. In each of the categories, the baseline mean of each program group can be compared. For example, of the students who fell in the low category, those in an ESL program have a higher mean each year than those in the bilingual education program. The means of the two programs of the middle and high groups seem to be similar. Yet, when looking at the total, the means of the ESL students seem to be significantly higher. Notice, that the increase in column height for each program and category shows growth.

Figure 10

Mean W-Scores for Three Years by Category and Program



Figures 11-13 now compares actual growth to the expected growth. The same patterns of growth for the different categories are seen as previously mentioned, that is low exceed expectations while middle and high fall below. However by program, the patterns seem to vary slightly at the end of the first year and vary more at the end of the second year. In the first year, ESL students in the low category gain more than expected when compared to the bilingual education students, but students in the middle and high categories had similar gains. By the second year, students in the bilingual education program made higher gains and were closer to the expected growth rates than the ESL students. Figure 14 provides a summary of actual and expected gains by category and by program for years 1 and 2. Once again the total is provided in order to show the disparity of gains if categories were not used.

Figure 11
Actual Minus Expected Gains for Two Years
of the Low Category of Students by Program

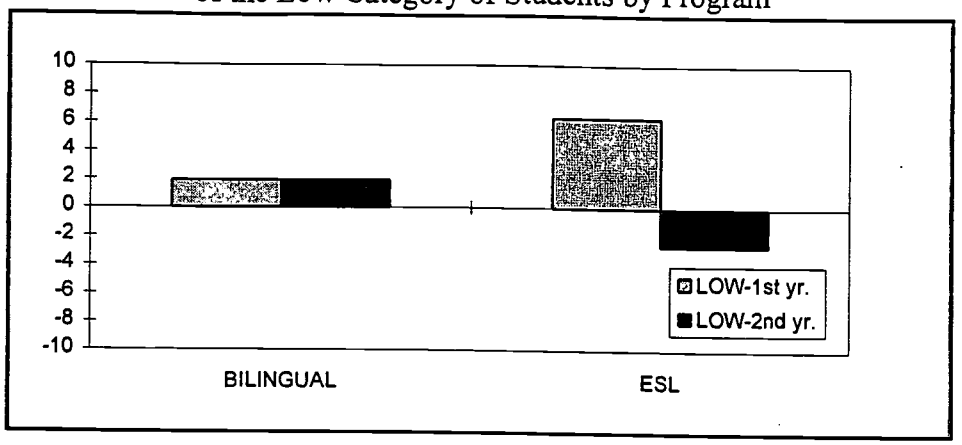


Figure 12
Actual Minus Expected Gains for Two Years
of the Middle Category of Students by Program

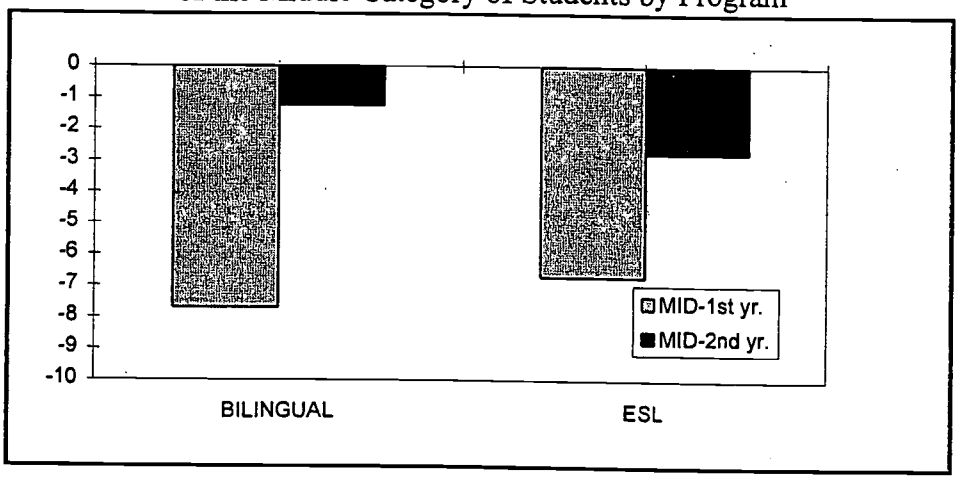


Figure 13
Actual Minus Expected Gains for Two Years
of the High Category of Students by Program

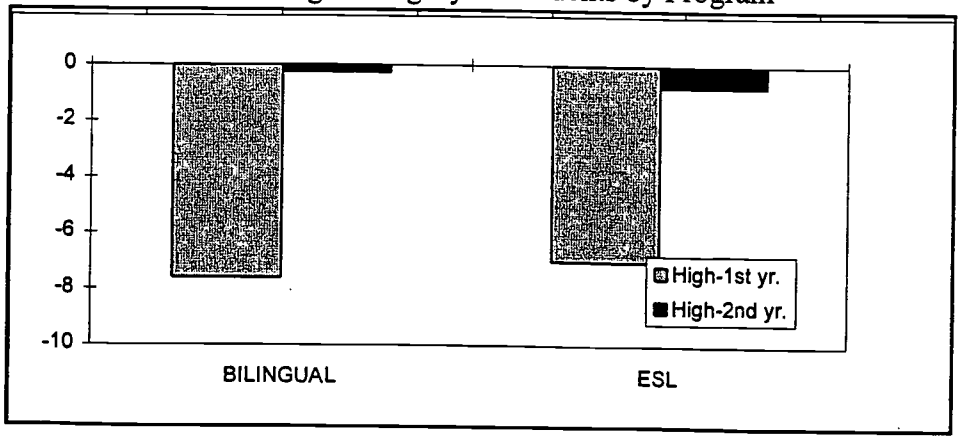
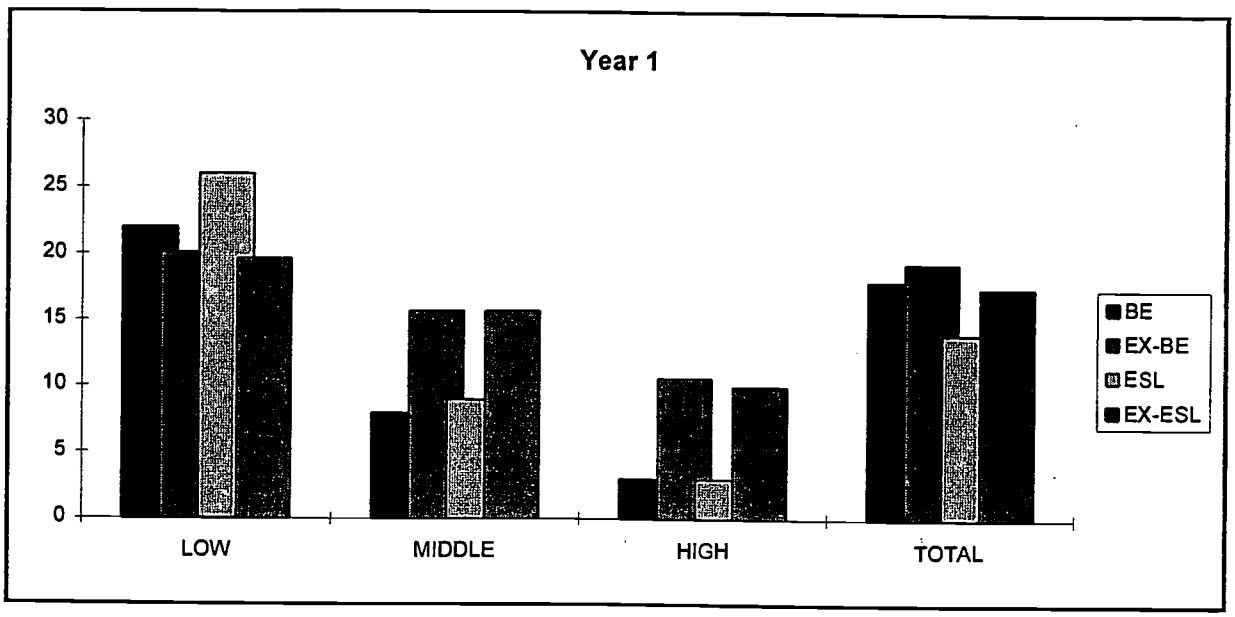


Figure 14

Summary of Actual and Expected Gains
by Category and Program



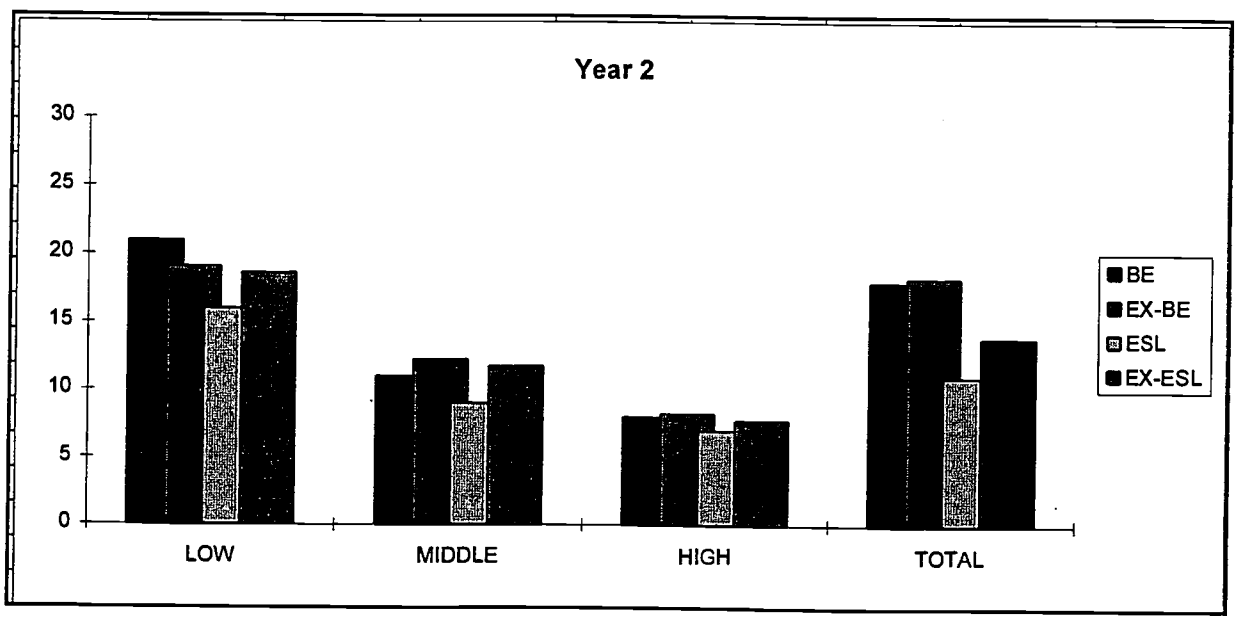


Table 2 provides data on how the students in BE and in ESL compare after a three-year cumulative effect is considered. While initial results indicated ESL students did better in the first year and BE students slightly surpassed the ESL students' gain in the second year, the overall difference for the two years was negligible. These results indicate with each year's varying rate of growth, more years of data are needed before it can be concluded that one program elicits higher gains than another. The program effect, therefore, will not alter the results of the previous section.

Table 2

Cumulative Gains Of Three Years of W-Scores
In Relation to Expected Gains by Program

	Bilingual			ESOL		
Category	Actual	Expected	Difference	Actual	Expected	Difference
Low	43	39.2	*3.8*	42	38.3	*3.7*
Middle	19	28	*-8.95*	18	27.5	*-9.45*
High	11	18.9	*-7.85*	10	17.8	*-7.75*

PROJECTIONS

The results of three years of data find that, on the average, DPS students will not reach level 4 in three years and do not meet expectations at the middle and high categories regardless of program type. But with three years of data available, expected growth rates can still be used to determine the optimal number of years it will take to reach level 4. This would be a "best case scenario" for the students in DPS.

Table 3 depicts the actual three years of DPS W-scores, by grade and category along with the additional years necessary to reach level 4. The W-scores are projected (based on the one-year standard gain) until either a level 4 is reached or until grade 12. While growth is occurring from one year to the next, students tend to stay in each level for several years. This is distinguishable in Table 3 by the shading. One can also notice that students stay in level 3-4 for several years. This has been shaded differently since level 3-4 may be an area of importance.

Students who fall in this level, are students whose scores fall into an area of question. They fall into the confidence interval band, which ultimately means that because of the possibility of error, they could be a level 4. Table 3 assumes that students will grow at the same rate of the normed group after three years. Once again, one can see that the number of years to reach level 4 is dependent on the initial W-score.

Table 3

Progression of W-Scores and Levels by Year and Category

Category Grade	Initial W-Score Actual	Year 1 Actual	Year 2 Actual	Year 3 Project	Year 4 Project	Year 5 Project	Year 6 Project	Year 7 Project	Year 8 Project	Year 9 Project	Year 10 Project
Low											
PreK	389	412	431	456	472	485	495	501.5	507.5	513.5	
Kn	414	436	455	472	483	495	501.5	508	514		
1st	423	445	460	476	488	497	503.5	510	515.5	519.5	524
2nd	417	444	460	476	488	497	503.5	510	515.5	519.5	524
3rd	416	446	465	480	491	500	506.5	512	517.5	523.5	
4th	411	449	469	483	493	501	507.5	513	518		
5th	410	453	471	484	494	502	508.5	514			
6th	421	468	475	487	496	504	510.5				
Middle											
Kn	450	462	471	484							
1st	453	462	475	487	496	504					
2nd	460	469	479	490	499	506	511.5	518			
3rd	465	472	480	491	500	507	512.5	518	522.5	526.5	
4th	465	472	481	492	501	507	512.5	518	522.5		
5th	464	476	482	493	501	507	512.5	518			
6th	463	476	483	495	501	507	512.5				
High											
2nd	480	478	490	499							
3rd	480	483	493	501	507	513					
4th	483	487	495	503	509	515	518	523.5			
5th	486	490	495	503	509	515	518	523.5			
6th	489	492	497	504	510	516	521.5				

Level 1
Level 2
Level 3
Level 3-4
Level 4

Consider first the DPS students in the low category. Using the *WMLS* standard one-year gain from Figure 1 and the third year of actual mean W-scores of each grade, projected scores clearly show that none of the students in this category will reach level 4 by their 5th year or even their 7th year. However, the Kn and 1st grade students will be inside the 3-4 band by the end of their 4th and 5th year respectively, if they continue as expected by the *WMLS* standard. It won't

be until the 7th year for 2nd and 3rd grade students to reach level 3-4 and grades 4-6 will not reach level 3-4 if they grow as expected.

Using the same process for the students in the middle category, Kn and 1st grade students will eventually reach level 4 and grades 2 and 3 will reach the 3-4 level band by the end of the 5th year. Notice that although 4th grade students will reach the 3-4 band by the end of their 6th year, 5th and 6th grade students fail to reach the 3-4 band. The students in 2nd grade will reach level 4 by their 7th year, however the 3rd grade students will take an additional two years in order to reach level 4. Recall, it has been validated that students who reach a level 4 can be reclassified as non-LEP.

Although students in the high category begin at level 3, only two out of the five grades which fell into this category will be level 4 by the end of the fifth year. Fourth grade students will reach level 4 by the end of their 7th year and the 5th and 6th grade students will remain in level 3-4 through the end of 12th grade..

CONCLUSIONS

There are three major points that can be made as a result of this study. The first comes out as a direct result of the *WMLS* standard one-year gain. In the past, when studying LEP students, gains based on the mean W-scores were found without placing the students in a low, middle, or high category. It has now been shown that these gains tend to mask the growth of the low scoring students when compared to their expected gains (Figure 9). Thus to give an accurate account of student performance, it is necessary to consider the three groups in addition to an overall picture. The need for categories was also evident when analyzing the data by program (Figure 14).

The second point responds to the topic of the paper. The three years of data which were analyzed lead to the following conclusions in regards to how long students of the DPS should take before they reach level 4, where they are determined to be cognitively ready in English to join the regular English programs. Looking at the *actual* scores for the three years of study, it can be stated that students fail to reach level 4 by the third year regardless of which category they fell under. When the data were graphed with the District's baseline and with two additional years of *expected* growth; DPS students fell short of matching the total expected growth.

However, all of the initial low and the majority of the middle and high scoring students with two years of expected gain *also* never reached level 4 in three years. It can be concluded that for DPS, it seems, cognitive proficiency in English can not be expected in three years time. The conclusions do not change when students are analyzed by program. The difference in programs did not impact the level of growth after two years.

The last point examines projected growth. It can be concluded that even if students perform as expected according to the one-year gain standard, the majority of low-scoring first year students will not reach level 4 in 5 years nor in 7 years. However, some low scoring students and most of middle and high scoring students should at least reach the 3-4 band in 5 to 7 years time. Students in several grades in the middle and high categories will reach level 4 in the 5th to 7th years. These data mirror the findings of Collier's (1995) research which states, that it takes 5 to 7 years for students to become proficient. The point that continues to resurface is that the lower the initial W-score, the more years it will take to reach level 4.

In response to when DPS LEP students become proficient, the three years of data limit us to conclude only that proficiency does not seem to be accomplished in three years. Looking at the projections in addition to the two years of actual growth, only the middle and high groups of students will approach level 4 by the end of years 5-7. Proficiency for initial low scoring LEP students will not be accomplished in five years. Only as DPS continues to get additional years of data can the District conclude more precisely how long it will take for LEP students to reach level 4. At this time it can only be predicted based on three years of data.

IMPLICATIONS AND CAUTIONS

Suffice it to say that DPS students do not grow at a rate of one proficiency level per year. De Avila, in his November 1997 NCBE report *Setting Expected Gains for Non and Limited English Proficient Students*, indicated that his research also shows that growing one proficiency level per year is unreasonable. De Avila points out that "absolute growth is to a large extent a function of initial level .... expect greater gains for an entering student than would be expected for a student further along." (p.7) He also indicates that expected gains has become an important concept in documenting the educational development of LEP students. This concept needs to be in relation to the *quality of the program* and *student outcomes*. De Avila concludes that "an

approach based on differential expectations can offer a powerful metric for evaluating both student progress and programmatic effectiveness."

This concept appears to be supported by the findings of this paper. Program effectiveness, based on the rate of growth, will be the crux to accountability as DPS continues to accumulate more years of data.

The authors of this paper agree with De Avila in that the expected gain values should be based on averages of the students and should not be used to evaluate progress of individual students.

RECOMMENDATIONS

The following are recommendations as a result of this study. First, based on the fact that DPS LEP students in the middle and high categories fail to perform as expected and, knowing that the students in the low category will eventually move into these two groups, the DPS BE/ESL programs must be restructured to meet the needs of these students. Previous evaluation studies (Oakeley,1997) find that higher cognitive academic language skills are not consistently present in the classroom. A restructuring of the program must be accomplished in order to reduce the number of years needed to reach level 4.

Second, as has been mentioned and referred to throughout the paper, level 3-4 and the 3-4 band are areas of concern. It was shown that students tend to remain in this area for several years and, being within close reach of level 4, it is important to reconsider this area as a possible region for declaring students as English proficient utilizing other district norm data.

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