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A Projected Enrollment Study of the Papillion-LaVista Public School District

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A PROJECTED ENROLLMENT STUDY

OF THE

PAPILLION-LAVISTA PUBLIC SCHOOL DISTRICT

A Field Project

Presented to the

Graduate Faculty

University of Nebraska

at Omaha

In Partial Fulfillment

of the Requirements for the Degree

Specialist in Education

University of Nebraska at Omaha

by

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FIELD PROJECT ACCEPTANCE

Accepted for the Graduate Faculty, University of Nebraska, in partial fulfillment of the requirements for the degree Specialist in Education, University of Nebraska at Omaha.

Supervisory Committee

Name	Department
Blaine E Ward	Ed Admin + Supervision
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CHAPTER 1

Introduction

Society will continue to undergo many demographic changes in the years ahead. The United States is facing a new demographic shock wave. For the first time, there are more Americans over 65 than under 18. It is no secret that the demographic portrait of the United States is slowly shifting patterns in the nation's class and family structures, in its immigration flow, in its work force, social support systems, and in its regional concentration of people. The impact of these changes may have drastic affects on school systems throughout the country.

The impact of national demographic trends have not been uniform throughout the nation. Overall population growth in the United States has changed very little from the 1970s. However, growth in the non-metropolitan population since 1980 has been markedly slower than the metropolitan population. About 90 percent of this growth in metropolitan areas has occurred in the South and West. The states with the most rapid growth in the metropolitan population from 1980 to 1984 are: Alaska, Texas, Arizona, and Nevada (Snyder, 1985).

The demand for education and society's ability to meet that demand are influenced by present and future demographic trends. What will be the enrollment in a specific school district in the year 1990? What will be the size of the graduating class in a specific school district in the year 2000? Although no one can answer these questions with certainty, school officials must have a thorough understanding of demographic trends and be able to make realistic forecasts of student enrollment.

The Papillion-LaVista Public School District has had a steady growth of enrollment since 1980. In 1980, the enrollment was 5,776. For the first time enrollment surpassed 6,000 students during the 1985-1986 school

year. The problem of overcrowded schools and classrooms is not a new one. As new subdivisions are planned and new homes are built within the boundaries of the Papillion-LaVista School District, school officials have had the responsibility of projecting future enrollment in order to determine the classroom needs of the district.

The Papillion-LaVista Public School District has experienced a 2.6 percent enrollment increase in 1986 as compared to 1985 enrollment figures. To meet this change, the Papillion-LaVista School District passed a 7.5 million dollar bond issue in December, 1983. With these funds, two modern facilities, Hickory Hill and Anderson Grove elementary schools were built, five other buildings had classroom additions, and an auditorium was built at the high school. However, even with the new schools and classroom additions, the Papillion-LaVista Public School system has an overcrowding problem at three of these schools.

Statement of the Problem

The purpose of this study was to project enrollments for the Papillion-LaVista School District through the year 1991.

Significance of the Study

This study will aid the Superintendent of Schools and the Board of Education as they make decisions concerning the following:

1. Rezoning school attendance boundaries
2. Future classroom needs, including school additions and temporary buildings.
3. The need for future school sites

Methodology to be Employed

In order to project enrollment figures for the Papillion-LaVista Public Schools through the year 1991, the following was done:

1. A review of relevant literature was undertaken.

2. The Percentage-of-Survival Method was used to project enrollment figures. The Percentage-of-Survival Method was applied to the following: the Papillion-LaVista School District, civilian and military students living off base in the district, Hickory Hill, G. Stanley Hall and Tara Heights attendance areas and to a break down of military and non-military students living in the attendance areas of the three elementary schools listed above. To calculate the figures the following was completed:
   a) Compiled a year-by-year listing for the past six years of children born to parents who reside within a community.
   b) Compiled year-by-year, grade-by-grade enrollments for the past six years.
   c) Entered the above information on forms A-1 and A-2 which are provided with the model.
   d) Computed the survival ratio of the number of pupils appearing in kindergarten to the number of children born five years earlier.
   e) Computed grade-by-grade, year-by-year survival ratios.
   f) Computed the average survival ratios.
   g) Computed future grade-by-grade, year-by-year enrollments.
3. A study of houses under construction and lots were plotted in the attendance areas of Hickory Hill, G. Stanley Hall and Tara Heights. Personal interviews with local realty companies and builders were conducted to accomplish this study.
4. Also views about projecting enrollments were obtained through personal interviews with other school district administrators and university administrators.

Limitations

The study was limited to the boundaries of the Papillion-LaVista Public School District. A total enrollment in grades kindergarten through six can be predicted only five years in advance.

Definition of Terms

Percentage-of-Survival Method - A forecasting model that predicts student enrollments by grade and age.

Survival Ratio - This is a ratio computed by dividing the enrollment for a given year and grade by the number of pupils enrolled in the previous year in the preceding grade.

Enrollment Projection by Study Areas - This is projecting enrollments in several sections of the school district that recently experienced a rapid growth. The only difference between this and the ordinary projection is that a past experience of five years instead of the usual fifteen is used.

Organization of the Project

Chapter 1 presents an overview of enrollment trends at the national level and of the Papillion-LaVista Public School System during the 1980s. It includes the statement of the problem, the purpose of the study, limitations of the study, definition of terms, methodology to be used, and organization of the study.

Chapter 2 is a review of related literature in reference to projected enrollments at the national, state, and local levels.

Chapter 3 is the methodology used in the study.

Chapter 4 is the presentation of data as computed using the Percentage-of-Survival Method.

Chapter 5 contains a summary of the study including conclusions and recommendations.

CHAPTER 2

Review of the Literature

Enrollment in elementary and secondary schools grew rapidly during the 1950s and peaked in 1971 with an all-time high of 46,081,000 students (Shaw, 1985). From 1971 to 1983 total enrollment decreased steadily, reflecting the decline in school age population over that period. After reaching a low of 44.6 million in 1984, total enrollment is expected to reverse its downward trend and increase slowly as large numbers of young children enter school. By 1993, total enrollment is projected to reach 47.9 million, an increase of 3.3 million over 1984 (Snyder, 1985).

Elementary and secondary enrollment trends are expected to contrast sharply as enrollments begin increasing in the lower grades and continue falling in the upper grades. Elementary enrollment is expected to reach 35.4 million by 1993, a growth of 14 percent from 1985 (Snyder, 1985).

Enrollment in the upper grades shows a different pattern. After peaking in the late 1970s, ninth-to-twelfth grade enrollment began to decline. High school enrollment is projected to decline 12 percent between 1985 and 1990 and will fall to a low of 12.1 million by 1990 (Snyder, 1985).

From 1955 to 1969, when total K-8 enrollments reached their highest level, pupil enrollment in the nation's elementary schools increased 33 percent, from 27.7 million to 36.8 million. As shown in Table 1, K-8 enrollment in non-public schools peaked in 1967 and two years later in public schools. However, elementary school enrollment declines in public and non-public in the 1970s were nearly as dramatic as enrollment increases were in the two decades before. Until the lowest total projected K-8 enrollment of 30.1 million is reached in 1984, enrollment in these grades will have declined 18 percent from the 1969 high of 36.8 million (Porwoll,

TABLE 1

Regular Elementary and Secondary Day School Enrollment, by Grade Level and Control of School: Fall 1967 to Fall 1989

Fall of Year	Total			Public			Nonpublic		
	K-12	K-8	9-12	K-12	K-8	9-12	K-12	K-8	9-12
				(In Thousands)					
1967	49,891	36,242	13,649	43,891	31,642	12,249	6,000*	4,600*	1,400
1968	50,744	36,626	14,118	44,944	32,226	12,718	5,800	4,400	1,400
1969	51,119	36,262*	14,322	45,619	32,597*	13,022	5,500	4,200	1,300**
1970	51,309*	36,677	14,632	45,909	32,577	13,332	5,400	4,100	1,300**
1971	51,181	36,065	15,116	46,081*	32,265	13,816	5,100	3,800	1,300**
1972	50,744	35,531	15,213	45,744	31,831	13,913	5,000	3,700	1,300**
1973	50,329	34,953	15,377	45,429	31,353	14,077	4,900**	3,600**	1,300**
1974	50,053	34,521	15,532	45,053	30,921	14,132	5,000	3,600**	1,400
1975	49,791	34,087	15,704	44,791	30,487	14,304	5,000	3,600**	1,400
1976	49,316	33,606	15,710*	44,316	30,006	14,310	5,000	3,600**	1,400
1977	48,577	32,936	15,640	43,577	29,336	14,240	5,000	3,600**	1,400
1978	47,611	32,055	15,556	42,611	28,455	14,156	5,000	3,600**	1,400
				PROJECTED					
1979	46,457	31,422	25,235	41,557	27,822	13,735	5,100	3,600**	1,500
1980	45,796	30,989	14,807	40,696	27,389	13,307	5,100	3,600**	1,500
1981	44,958	30,637	14,321	39,858	27,037	12,821	5,100	3,600**	1,500
1982	44,111	30,395	13,716	39,111	26,795	12,316	5,000	3,600**	1,400
1983	43,766	30,301	13,465	38,666	26,601	12,065	5,100	3,700	1,400
1984	43,591**	30,128**	13,463	38,491**	26,428**	12,063	5,100	3,700	1,400
1985	43,748	30,248	13,500	38,548	26,448	12,100	5,200	3,800	1,400
1986	44,080	30,651	13,429	38,780	26,851	11,929	5,300	3,800	1,500
1987	44,473	31,078	13,078	39,073	27,495	11,578	5,400	3,900	1,500
1988	44,974	32,259	12,715	39,374	28,259	11,115	5,600	4,000	1,600*
1989	45,393	33,093	12,300**	39,793	28,993	10,800**	5,600	4,100	1,500

*Highest Enrollment
**Lowest Enrollment

1980).

According to Porwoll (1980), future K-8 enrollment will be largely determined by the population in the 5-to-13 year-old age group, barring unforeseen changes in the present attendance policies or in the grade structure of the educational system. Table 2 shows estimations and projections of the population age 5-to-17 years from 1950 to 2000.

The Bureau of Census (1983) provides a variety of methods for projecting future populations. The most common are Series I projections, which assumes an average of 2.7 lifetime births per woman, Series II projections of 2.1 lifetime births per woman, and Series III projections of 1.7 lifetime births per woman. Series II, the "replacement level" birth rate, is the assumed level of fertility that corresponds most closely to recent survey data on birth expectations. Thus, Series I projections represent the highest assumed rate; Series II, the intermediate rate; and Series III the lowest assumed rate.

Porwoll (1980) determined that Series II projections of the elementary-age population (age 5-to-13 years) will show an expected decrease until 1990; however, the 1990 population should increase 11.9 percent from 1985. The 5-to-13 year-old population then is expected to increase 8.7 percent from 1990 to 1995. After steady declines in the secondary age population from 1980 to 1990 under Series III projections, the 14-to-17 year-old population is expected to increase substantially from 1990 to 2000. Figure 1 shows these relationships graphically.

In 1957, at the height of the Baby Boom, American women were having children at a rate of 3.7 per lifetime. Today, that rate has declined to 1.8, well below the 2.1 fertility rate that demographers say is necessary

TABLE 2

Estimates and projections of the Population Age 5 to 17 Years: 1950 to 2000

	Estimate		Projections					
			Series I		Series II		Series III	
	Population	Percent Change	Population	Percent Change	Population	Percent Change	Population	Percent Change
Population Age 5 to 13 Years								
1950	22,423	NA						
1955	27,925	+24.5%						
1960	32,965	+18.0						
1965	35,754	+ 8.5						
1970	36,636	+ 2.5						
1975	33,440	- 8.7						
1980			30,197	- 9.7%	30,197	- 9.7%	30,197	- 9.7%
1985			31,012	+ 2.7	29,098	- 3.6	27,665	- 8.4
1990			38,591	+24.4	32,568	+11.9	28,546	+ 3.2
1995			43,995	+14.0	35,392	+ 8.7	30,070	+ 5.3
2000			44,725	+ 1.7	35,080	- 0.9	28,915	- 3.8
Population Age 14 to 17 Years								
1950	8,444	NA						
1955	9,247	+ 9.5%						
1960	11,219	+21.3						
1965	14,153	+26.2						
1970	15,910	+12.4						
1975	16,934	+ 6.4						
1980			15,763	- 6.9%	15,763	- 6.9%	15,763	- 6.9%
1985			14,392	- 8.7	14,392	- 8.7	14,392	- 8.7
1990			12,771	-11.3	12,771	-11.3	12,771	-11.3
1995			16,609	+30.1	14,226	+11.4	12,417	- 2.8
2000			19,698	+18.6	16,045	+12.8	13,831	+11.4

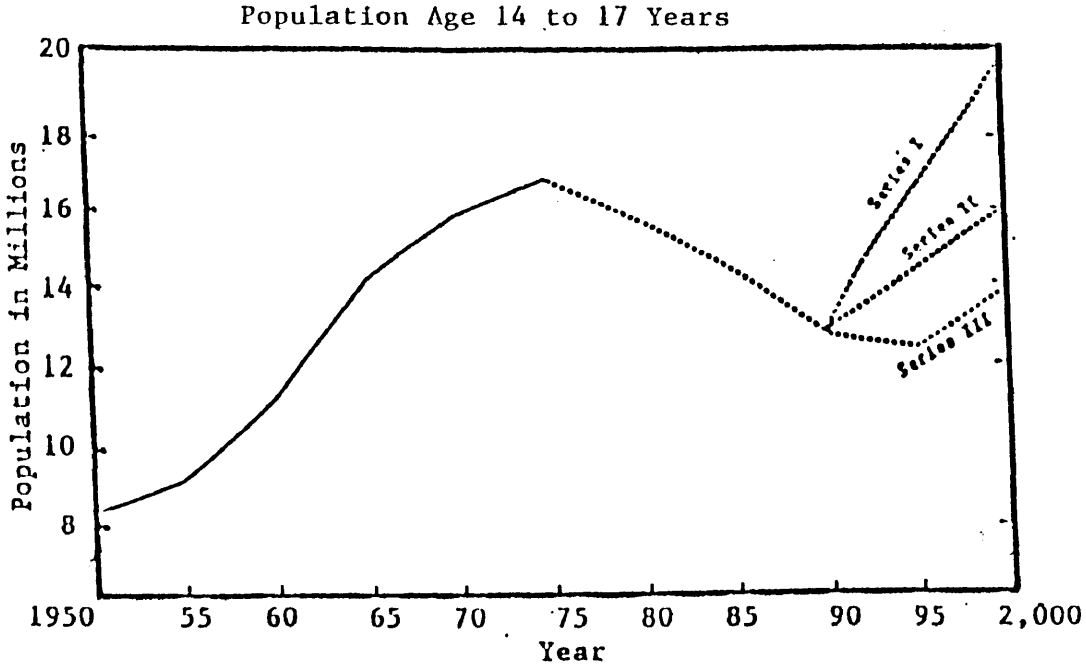

FIGURE 1
Estimates and Projections of the Population Age 5 to 17 Years:
1950 to 2000

for one generation to replace itself with another of equal size (Hodgkinson, 1986).

Fishlow (1978), has grouped the diverse causes of lowered fertility into two general categories: restrictions in opportunities for economic advances, which bears heavily on younger persons, and the extension to women of the belief of individualism, or the right to pursue self-fulfillment through a wide range of personal choices.

In projecting changes in population, according to Davis and Lewis (1978), three components must be examined: births, deaths, and migration. Births are the single most important component that needs to be estimated, especially for changes in school enrollment.

Currently, the fertility rate for white American women is 1.7 children per lifetime. The comparable rate for black women is 2.4; for Mexican-American women it is 2.9 (Hodgkinson, 1986).

An increasing number of people are postponing marriage and child bearing to pursue education and career opportunities. In 1984, the estimated median age of women beginning their first marriage was 23, which is the highest median age since 1890. For men, the median age is now 25.

In 1981, we passed another statistical landmark: the number of married, childless couples surpassed the number of married couples with children. By 1985, there were 24 million married couples with children, compared with 26 million who had none.

Today, a steadily increasing percentage of women are choosing to have children later in life, or not at all; of all women ages 18 through 44, nearly 2 out of 5 have never given birth.

Since 1970, the number of first births to women ages 25 and older

has doubled. The biggest increase has been among women ages 30 to 34. Their first births have tripled, from 42,000 in 1970 to 137,000 in 1982 (Smith, 1986).

From 1955 to 1969, enrollment in grades 9-12 rose about 88 percent, from 7.6 to 14.3 million students. While public school enrollment in grades 9-12 peaked in 1976, non-public school enrollment in these grades is not expected to peak until 1988. Total secondary school enrollment is projected to decrease throughout the 1980s. Total projected 1989 enrollment in grades 9-12 of 12.3 million students will be 2.9 million (19 percent) lower than 1979.

Total 9-12 enrollment is projected to hit its lowest point in 1989, according to the most recent data from the National Center for Education Statistics. In that year, if the projections are accurate, public school enrollment in grades 9-12 will have decreased 25 percent from the 1976 peak. On the other hand, 9-12 enrollment in non-public schools was lowest from 1969 to 1973 and is projected to be highest in 1988. The projected increase over this period is 23 percent. (Porwoll, 1980).

Snyder (1986) found that one area that experienced considerable enrollment growth during the 1970s was preprimary education. Over the past decade, enrollments in nursery schools and kindergartens increased significantly. From 1970 to 1983, public and private preprimary enrollment increased from about 4.3 million to 5.7 million, a rise of 33 percent. This increase occurred despite the 5 percent decline in 3-to-5 year-old population over this period because of rapidly rising proportions of young children attending school. This population decline is projected to turn around, spurring further growth in preprimary enrollment, which is expected to increase to approximately 7.2 million by 1993, an increase of 25 percent

from 1983.

Changes in population distribution also have a considerable impact on local school enrollments. National and state data from the Census Bureau for the 1960s and 1970s have provided school officials estimates and projections of trends affecting population movement in the United States. From 1970 to 1978 resident population increases were greatest in the West and South. Forty percent of this population growth occurred in three states: California (+2.3 million), Florida (+1.8 million), and Texas (+1.8 million). Five states: Nevada, Alaska, Arizona, Wyoming, and Florida had the highest rates of growth during this period. The increases in Alaska and Wyoming were linked to energy exploration, while Arizona and Florida are popular retirement choices. Population decreases from 1970 to 1978 were reported in the District of Columbia, New York, Rhode Island, and Pennsylvania. Other recent migration data indicate the following trends: non-metropolitan areas have grown faster in the 1970s than metropolitan areas, suburban areas have continued to gain population, the number of blacks increased faster than the number of whites in suburban areas, the highest mobility rates were found for persons in their twenties, and more people moved away from metropolitan areas than to them during the late 1970s.

Another factor that will affect school enrollment is immigration into the United States. America has always been a nation of immigrants. The resulting ethnic and cultural diversity has given our society a distinctive vitality. But the assimilation of newcomers into the mainstream culture has been a difficult and tumultuous process.

The first great period of immigration in this country was between 1910 and 1930, when 14.2 million people entered our nation. In 1984,

559,000 people immigrated legally to the United States. Add this number to the estimated 300,000 to 500,000 people who entered the country illegally and 1984 becomes the greatest year for immigration in our history (Hodgkinson, 1986). Immigrants entering the United States each year account for two-thirds of all the immigrants in the world. If the nation continues to allow up to 750,000 immigrants to settle here annually, by 2030 the population will be about 18 percent larger than it would otherwise be.

Most parts of the nation as yet feel little impact from this wave of immigrants because the majority of the newcomers are choosing to settle in relatively few places. But in those areas, the effects have been astounding. Hodgkinson (1986) states that in 1984, 17.4 percent of all legal immigrants to the United States planned to move into one of five metropolitan areas in the state of California. Moreover, 30 percent of all the illegal immigrants counted in the 1980 census reside in Los Angeles County. Demographers predict that as a combined result of low white birth rates and immigration, by 2010 California will become the first state to have a population whose majority is made up of minorities.

In a recent study by Snyder (1985), he stated that minority enrollment as a percent of total enrollment in public schools increased during the 1970s, particularly in large city school systems. Nationally, minority enrollment as a percent of the total rose from 21 percent in 1970 to 27 percent in 1980. Of the 24 cities he surveyed, Boston, Denver, Portland, San Diego and Seattle doubled the percentage of minority students enrolled in their systems. By 1982, 17 of the 24 cities had more than two-thirds minority students. Four cities: Atlanta, Washington, Newark, and San Antonio had enrollments that were more than 90 percent minority.

CHAPTER 3

Methodology

Several methods, none of which are perfectly reliable, have been devised for projecting school enrollments. The Percentage-of-Survival Method was chosen because it is used by school districts that are similar to the Papillion-LaVista District. The Percentage-of-Survival Method is generally used as a short range (1-7 years) forecasting tool and is based on the calculations of a series of survival rates that indicate the fraction of students in one grade in a given year who "survive" to the next grade the next year. This concept is illustrated in the following example. Let us assume that during the past fifteen years it was found that, on the average, 95 percent of the pupils enrolled in the first grade appeared in the second grade a year later, and that 98 percent of the pupils enrolled in the second grade entered the third grade in the following year. Then, if there are now 100 pupils in the first grade, it can be anticipated that 95 of them will appear in the second grade next year. And, of these 95, it can be reasonably expected that 93 will be enrolled in the third grade in the following year.

In the Percentage-of-Survival Method, it is assumed that the following factors will continue in the future as they have averaged during the past several years: death rate of children, migration of pupils (both in and out), retardation policy, dropouts, and influx from private to public schools and vice versa.

The future enrollments predicted by the Percentage-of-Survival technique should be scrutinized in terms of the above assumptions. Any evidence that changes one or more of the five assumptions listed above should be carefully considered in determining future school enrollments. Adjustments in final enrollment figures should be made judiciously where

necessary.

The Percentage-of-Survival Method is a predictor of total enrollment in grades kindergarten through sixth grade only five years in advance. However, due to the ease with which an enrollment projection of this type can be kept up-to-date on a yearly basis, this is not a serious limitation.

Besides applying the Percentage-of-Survival Method to the Papillion-LaVista Public School District, a supplemental enrollment projection for Hickory Hill, Tara Heights, and G. Stanley Hall Elementary Schools was done. This supplemental projection included military students living off base within the boundaries of the three schools listed above and military and civilian students within each school boundary. The data available were limited since the boundaries for these three schools were changed in 1985, with the opening of Hickory Hill. However, the building principals will be able to update these projections with little effort in the future.

To apply the Percentage-of-Survival Method, a year-by-year listing for the past eleven years of children born to parents who reside within the community was compiled. Then the year-by-year, grade-by-grade enrollments for the past six years for the entire district and each elementary school listed (as of October 1st 1986) was collected. Next, the survival ratios of the number of pupils appearing in kindergarten to the number of children born five years earlier was computed. Following this, grade-by-grade, year-by-year survival ratios were computed. The survival ratio was computed by dividing the enrollment for a given year and grade by the number of pupils enrolled in the previous year in the preceding grade. Then the arithmetic average of ratios were computed. Then future grade-by-grade, year-by-year enrollments were computed by multiplying each number of births by its corresponding average survival factor and multiplying the number of pupils in a given grade and year by the survival factor. The

success of the model is dependent on the accuracy of the basic imput data. All enrollment figures for the Papillion-LaVista Public School System were obtained by the census secretary for the district. The data on births to parents who reside within the communities of Papillion and LaVista were obtained from the Bureau of Vital Statistics (Health Data and Research) located in Lincoln, Nebraska.

In gathering the above data, it was necessary to investigate several of the variables which may influence the Percentage-of-Survival Method. Personal interviews were conducted with several real estate agents, the Papillion building inspector, the president of the Sarpy County Builder's Association and with personnel from the Planning and Zoning Departments of the cities of LaVista and Papillion. Through these interviews, invaluable information such as: number of lots being plotted in a particular area, lot size, square feet requirements, zoning regulations and future plans for possibly more residential subdivisions was received.

Several discussions were held with Gary Krallman of the Bellevue Public Schools. This study is very similar to what the Bellevue Public Schools use for projecting their enrollments, but on a smaller scale.

Dr. Stanley Wilcox, Assistant Superintendent of the Papillion-LaVista Public School District was very helpful. His information on the number of children per house was beneficial.

CHAPTER 4

Findings of the Study

In 1986, new home building in the Papillion-LaVista area fell slightly behind the pace set in 1985. Through November 1986, 155 building permits for new homes had been issued in Papillion and surrounding subdivisions, which is behind the pace set in 1985 when 182 new permits were issued.

In 1986, most of the building activity was in the Hickory Hill area. According to the Papillion Building Inspector, the new subdivisions of Hickory Hill II, Summerfield and Cottonwood should see the most activity next year.

The three new subdivisions are in the vicinity of 72nd Street, which was recently reopened as a four-lane paved highway replacing the previously graveled road. Recently grading for another subdivision at 72nd and Giles Road, Ardmore Heights, was started. This development is within the LaVista city zoning jurisdiction.

A supplementary enrollment projection was done for Hickory Hill, Tara Heights and G. Stanley Hall since these are the three elementary schools that children from these new subdivisions will attend. Other areas in the Papillion-LaVista School District are experiencing some growth, but not as significant as the areas mentioned above.

Projection enrollment figures for the four new subdivisions are presented in Table 3. This table displays total number of plotted lots and projected students in each subdivision using .7 and .9 as the number of students projected for each house. Hickory Hill II is currently showing the most building activity with 30 lots sold. The Ardmore subdivision in the G. Stanley Hall attendance area is currently being graded for street paving. Housing construction for this area will not start until the fall

Papillion-LaVista Public Schools

Table 3

New Housing Developments in the attendance area of Hickory Hill, Tara Heights, and G. Stanley Hall

Elementary School	Development	Plotted Lots	Projected Students Per Home .7	.9
Hickory Hill	Hickory Hill II *Phase II	127	89	114
Tara Heights	Summerfield	168	118	151
	Cottonwood	82	57	74
G. Stanley Hall	*Ardmore	217	152	195

*Streets are not yet constructed

of 1987. Hickory Hill has the most lots plotted within its boundary. Summerfield has twenty-seven lots sold and Cottonwood has five lots sold.

All available data collected in this study indicate that the Papillion-LaVista Public School enrollment will continue to increase for the next five years. Classroom population will continue to reflect residential building trends in Sarpy County.

The basic data for forecasting student population are presented in Tables 4 and 5. Table 6 used the information from Tables 4 and 5 and also displayed survival ratios and enrollment projections grade-by-grade from 1987 to 1991. Row II presents the live births in the Papillion-LaVista School District six years prior to the current school year. The next even numbered rows represent student enrollment over a six year period (1980-85). The survival ratio of the number of pupils appearing in kindergarten to the number of children born five years earlier was computed by dividing kindergarten enrollment by the corresponding birth rate five years earlier. To determine the kindergarten survival ratio of 2.02 for 1980, the enrollment of 454 was divided by 225. The survival ratio of 1.04 for the 1st grade was calculated by dividing 473 by 454. After all the survival ratios were calculated, the average survival ratio was calculated and recorded in the circles under each column. Once a mean survival ratio was established for each grade level, it was possible to compute future grade-by-grade, year-by-year enrollments. This was accomplished by multiplying the number of pupils in a given grade and year by the survival factor within the circle through which the arrow passes. The results were then recorded in the space indicated by the top of the arrow. The prediction of 483 second graders for the 1987-88 school year was determined by multiplying the mean survival ratio 1.02 times 474. The second year projection of 480 students for 1988 was determined by multiplying 1.02 times 471. The

Papillion-LaVista Public Schools

Table 4

Resident Live Births

1975 - 1985

	Papillion	LaVista	Total
1975	77	148	225
1976	114	137	251
1977	112	148	260
1978	79	176	255
1979	103	176	279
1980	103	213	316
1981	108	221	329
1982	102	189	291
1983	93	204	297
1984	130	193	323
1985	122	213	335

Health Data and Statistical Research

Nebraska State Health Department

Student Enrollment In The Papillion-LaVista Public Schools
1980-1986

Table 5

Form A-1

BASIC DATE FOR ENROLLMENT PROJECTION

Resident Births	
1980	235
1981	251
1982	260
1983	255
1984	279
1985	316
Current Year	

Past School Years	Past Enrollment by Grades and Years as of October 1st												
	K	1	2	3	4	5	6	7	8	9	10	11	12
1980	454	381	446	477	446	496	463	433	401	428	473	441	413
1981	406	473	397	464	482	465	514	479	436	391	445	446	407
1982	421	412	472	405	449	482	483	499	475	445	400	430	443
1983	408	456	424	477	418	478	476	490	510	475	447	369	389
1984	430	423	457	426	492	424	443	483	468	505	476	421	362
1985	470	450	427	471	462	513	475	455	493	484	489	469	398
Current Year	449	474	470	453	471	458	515	439	431	515	482	447	454

Enrollment Projections of the Papillion/LaVista Public Schools
1987-1991

Table 6

Form A-2 — ENROLLMENT PROJECTION FOR COMMUNITIES PROVIDING KINDERGARTEN

School Year	Birth 5 Years Earlier	Kind.	Grade 1	2	3	4	5	6	7	8	9	10	11	12
	2	4	6	8	10	12	14	16	18	20	22	24	26	28
Past Enrollment														
1980	225	454	381	446	477	446	496	463	433	401	428	473	441	413
1981	251	406	473	397	464	482	465	514	479	476	391	445	446	407
1982	260	421	412	472	405	449	482	483	499	475	445	400	430	443
1983	255	408	456	424	477	418	478	476	490	510	475	441	369	389
1984	279	430	423	457	426	492	424	443	483	468	505	476	421	362
1985	316	470	450	427	471	452	513	435	455	493	484	489	459	398
Current Year 1986-87			474	470	453	471	458	515	438	481	515	482	467	454
Average Survival Ratio		1.65	1.05	1.02	1.03	1.02	1.03	1.00	1.01	1.01	1.01	1.00	.96	.95

		Kind.	Grade 1	2	3	4	5	6	7	8	9	10	11	12
Current Year		449	474	470	453	471	458	515	438	481	515	482	467	454
Future Enrollment														
1986-87	291	480	471	481	484	462	485	458	520	442	486	515	462	444
1988	297	490	504	480	497	494	476	485	463	525	446	486	494	439
1989	323	532	515	514	494	507	508	476	490	468	530	446	467	469
1990	335	552	559	525	529	504	522	508	481	495	473	530	428	443
1991	NA		580	570	540	540	519	522	513	486	500	473	508	407

projection of student enrollment for the 1987-88 school year using the Percentage-of-Survival Method is 6192, an increase of 65 students from the previous year.

A recent study by Robert Shaw at the University of Missouri-Columbia, found that the Percentage-of-Survival Method produced a mean error score of 10.6 percent. The five year enrollment projections with a 10.6 percent variance are illustrated in Table 7.

Table 8 displays the Percentage-of-Survival Method to military students who live in the Papillion-LaVista School District. This information is helpful to administrators and school members because of Federal Aid the district receives per-pupil. Accurate forecasting of these students will help make the budgeting process easier.

Tables 9 and 10 display the Percentage-of-Survival Method applied to military and civilian students and military students at Hickory Hill, Tara Heights and G. Stanlay Hall. The year 1985 was used as the starting year since Hickory Hill opened that year and boundaries for the other two schools were changed. It was not possible to project kindergarten enrollment with the data available. However, using information from kindergarten round-up which was held in April, 1987, it was possible to get a total projected enrollment for each of the three schools for the 1987-88 school year.

Using the Percentage-of-Survival Method along with the 1987 kindergarten round-up totals, a prediction for the 1987-88 school year was made. Tara Heights will gain the most students with an increase of 51 students, Hickory Hill will gain 26 students and G. Stanley Hall with lose 22 students. This pattern is very similiar to what has happened to enrollment figures during the 1986-1987 school year. As the four new subdivisions fill in with more and more houses, all three schools will see an increase in enrollment.

Table 7

Papillion-LaVista Public Schools

Five-Year Enrollment Projections with 10.6 Percent Variance

Grade	1987			1988			1989			1990			1991		
	Min		Max	Min		Max	Min		Max	Min		Max	Min		Max
K	429	480	582	438	490	542	476	532	588	493	552	611		NA	
1	421	471	521	451	504	557	460	515	570	473	529	585	519	580	641
2	432	483	534	429	480	531	460	514	568	469	525	501	510	570	630
3	433	484	535	444	497	550	442	494	546	473	529	585	483	540	597
4	413	462	511	442	494	546	453	507	561	451	504	557	483	540	597
5	434	485	536	426	476	526	454	508	562	467	522	577	464	519	574
6	409	458	507	434	485	536	426	476	526	454	508	562	467	522	577
7	465	520	575	414	463	512	438	490	542	430	481	532	459	513	569
8	395	442	489	469	525	581	418	468	518	443	495	547	434	486	538
9	434	486	538	399	446	493	474	530	586	423	473	523	447	500	553
10	460	515	570	434	486	538	399	446	493	474	530	586	423	473	523
11	413	462	511	442	494	546	417	467	517	383	428	473	454	508	562
12	397	444	491	392	439	486	419	469	519	396	443	490	364	407	450

Table 8

Papillion-LaVista Public Schools

Percentage of Survival Method Applied to Military Students

Military																							
	K	(SR)	1	(SR)	2	(SR)	3	(SR)	4	(SR)	5	(SR)	6	(SR)	7	(SR)	8	(SR)	9	(SR)	10	(SR)	11	(SR)	12
1985	158	1.04	173	1.07	164	1.14	211	1.00	195	1.03	193	1.07	198	.94	190	.99	212	.95	181	.97	195	.91	151	.97	125
1986	162		164		185		187		211		200		207		187		189		201		176		177		147
1987																									
1988	NA		168		175		211		187		217		214		195		185		180		195		160		172

(projected enrollment).

Table 9

Papillion-LaVista Public Schools

Percentage-of-Survival Method applied to military and civilian students at Hickory Hill, Tara Heights and G. Stanley Hall.

Hickory Hill

	K	(SR)	1	(SR)	2	(SR)	3	(SR)	4	(SR)	5	(SR)	6	(SR)	Total
1985	49		44		45		62		38		47		43		328
1986	38	1.00	49	1.27	56	1.02	46	1.02	63	1.13	43	1.21	57		352
*1987	51**		38		62		57		47		71		52		378

Tara Heights

	K	(SR)	1	(SR)	2	(SR)	3	(SR)	4	(SR)	5	(SR)	6	(SR)	Total
1985	41		42		25		46		30		29		38		251
1986	34	1.10	45	1.00	42	1.4	35	1.11	51	1.17	35	1.14	33		275
*1987	46**		37		45		59		39		60		40		326

G. Stanley Hall

	K	(SR)	1	(SR)	2	(SR)	3	(SR)	4	(SR)	5	(SR)	6	(SR)	Total
1985	71		59		54		66		55		70		42		417
1986	72	.82	58	1.02	60	1.04	56	.80	53	1.03	58	.89	62		419
*1987	64**		59		59		62		45		56		52		397

*Projected enrollment

** 1987 Kindergarten Round-Up Totals

Table 10

Papillion-LaVista Public Schools

Percentage-of-Survival Method applied to Military students at Hickory Hill, Tara Heights and G. Stanley Hall.

Hickory Hill

	K	(SR)	1	(SR)	2	(SR)	3	(SR)	4	(SR)	5	(SR)	6	(SR)
1985	21		18		21		31		23		16		20	
1986	15	.66	14	1.5	27	1.05	22	1.03	32	1.26	29	1.5	24	
1987	NA		10		21		28		23		40		44	

Tara Heights

	K	(SR)	1	(SR)	2	(SR)	3	(SR)	4	(SR)	5	(SR)	6	(SR)
1985	10		5		5		14		7		8		14	
1986	7	1.2	12	.6	3	1.6	8	1.07	15	1.29	9	1.5	12	
1987	NA		8		7		5		9		19		14	

G. Stanley Hall

	K	(SR)	1	(SR)	2	(SR)	3	(SR)	4	(SR)	5	(SR)	6	(SR)
1985	5		8		5		9		7		6		4	
1986	4	.8	4	1.0	8	1.0	5	.67	6	.71	5	.5	3	
1987	NA		3		4		8		3		4		3	

CHAPTER 5

Summary, Conclusions, and Recommendations

Making realistically accurate forecasts of student enrollment is a very important and vital task of school administrators. School enrollment projections are an important record which can be used in all aspects of educational planning. A continuous, complete census system is an invaluable aid in providing insights into many of the factors which affect future public school enrollments. School administrators must be very careful when making enrollment projections because of the many variables involved.

Historically, long range projections have been unreliable. In the 1930-40s, enrollment increases which were to occur during the 1950s were not foreseen. Likewise, the declining birthrate which has affected enrollments in the 1970s was not predicted ten years ago. It is therefore imperative that school officials annually update enrollment projections so that changing conditions can be reflected and their effects anticipated.

The purpose of this study was to project enrollments for the Papillion-LaVista School District through the year 1991. With the opening of several new subdivisions and as new subdivisions are planned, school administrators have the responsibility of projecting enrollment and planning for the future.

In this study, the Percentage-of-Survival Method was applied to the entire district to predict student enrollment through 1991. A supplemental projection was made using the Percentage-of-Survival Method to military and civilian students and military students living within the boundaries of Hickory Hill, Tara Heights, and G. Stanley Hall Elementary Schools. Also, a study of houses under construction and lots which are plotted in the attendance areas of Hickory Hill, Tara Heights, and G. Stanley Hall was made.

Personal interviews with real estate agents, building inspectors, and personnel from the Planning and Zoning Departments of the cities of LaVista and Papillion provided invaluable information.

The results of this study indicate that the enrollment of the Papillion-LaVista School District will increase at a steady pace through 1991. Also, Hickory Hill, Tara Heights, and G. Stanley Hall will see a significant increase in enrollment as new homes are built in subdivisions in these attendance areas.

Conclusions

1. Hickory Hill Elementary School services children from Centennial to Giles Road, and from 84th Street to 72nd Street which includes Hickory Hill II. Within this boundary, there will be 160 acres of land to be developed in the future. Next year Hickory Hill will gain 26 students. The number of military students will also increase in 1987.
2. Tara Heights Elementary School will gain the most students in the 1987-88 school year with 51 students. The development of the Summerfield subdivision, approximately 160 acres, will increase student enrollment at Tara Heights. Within the Cottonwood subdivision, there are 440 acres that can be developed. As these two developments fill in with houses, Tara will definitely increase in student enrollment.
3. G. Stanley Hall Elementary School, with its area boundary from 60th Street to 72nd Street, and from Harrison to Giles Road, will experience additional growth in the next several years as the Ardmore subdivision is developed. There are approximately 400 acres of land that can be developed in this area. During the 1987-88 school year, G. Stanley Hall will lose 22 students. However, this will only be a short term decrease in student enrollment until the Ardmore subdivision takes off.

4. In grades kindergarten through twelve, the Papillion-LaVista School District will increase students in the 1987-88 school year. The total projected enrollment for grades kindergarten through twelve by the year 1990 was 6,549 students. This is a 6.9 percent increase as compared to the 1986-87 school year. The mean survival ratio of 1.05 was highest for students going from kindergarten to first grade. The lowest mean survival ratio of .95 was from students in eleventh grade going into twelfth grade. The highest survival ratio for military students was 1.14 for third graders and the lowest survival ratio was .91 in the eleventh grade.

Recommendations

1. An Assistant Superintendent should continue to apply the Percentage-of-Survival Method to the entire district. This should include military and civilian students and a separate study for military students.
2. All building level principals should be required to do an enrollment projection study using the Percentage-of-Survival Method for their individual attendance areas.
3. A ten classroom addition should be added on to Hickory Hill Elementary School. This will alleviate the already overcrowded conditions and allow all students from the Hickory Hill II subdivision to attend Hickory Hill.
4. Enrollment projections indicate that students in grades ten through twelve will continue to increase. With Papillion-LaVista High School already at capacity, at least twenty to twenty-five classrooms will be needed as soon as funds become available. A careful study of this problem should be made.
5. As the Cottonwood subdivision is developed, the Board of Education needs to purchase an elementary school site in this area. This would alleviate the problem of students from the Cottonwood area having to cross the busy Cornhusker Highway to attend school at Tara Heights.

6. All other elementary schools in the Papillion-LaVista Public System have enough classroom space to handle additional growth. This is also true for LaVista Junior High and Papillion Junior High.

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