The Alberta Journal of Educational Research

THE COMMITTEE ON EDUCATIONAL RESEARCH

Faculty of Education
University of Alberta

VOL. I, No. 1 MARCH, 1955

CONTENTS

	PAGE
EDITORIAL	3
GREETINGS FROM COOPERATING ORGANIZATIONS	4
Factors Associated with School Drop-Outs *Alberta E. Hohol*	7
A Survey of Reading Achievements in Alberta Schools *Anne Carmichael and Robert E. Rees*	18
A Comparative Study of Public and Private Bus Ownership of School Buses in Alberta *Robert A. Kimmitt*	34
Why Teaching Is Chosen as a Career *S. T. Clarke and W. Pilkington*	44
The Reading Abilities of Adults	53
BOOKS	61

Editorial

RESEARCH IN THE UNIVERSITY

PRESIDENT ANDREW STEWART

Universities are concerned with the communication of knowledge and with the extension of knowledge. Teaching is their main concern, but research—the application of disciplined intellectual curiosity at the margins of knowledge—is required by the teaching function. The effective teacher is the kind of person who is possessed of intellectual curiosity, and can induce the same curiosity in his students. Those engaged in transmitting knowledge should wish to expand the boundaries of their own knowledge. It is a good thing for a University to be staffed by teachers who feel compelled to do some research.

Learning, at the graduate level, requires contact with research. The graduate student should be exercising his intellectual curiosity and be learning the methods of disciplined enquiry. There must be enough research available at the University to meet the needs of graduate students. However, research projects for graduate students should be selected on the basis of the educational experiences to be derived from them. If projects are chosen for other reasons (for example, the instructor wishes assistance in his own research, or some fellowship donor has a particular problem he wishes investigated) they may make little contribution to the primary function of the University.

Research is also carried on in Universities as a function unrelated to teaching—that is, for its own ends. To an increasing extent other institutions and agencies, public and private, are providing facilities and personnel for research, and are maintaining their own research programs. Under what conditions should research, unrelated to the teaching function, be placed in the University rather than elsewhere?

Where research has already developed in a University, and facilities and organization already exist, duplication can be avoided by attaching new research to the existing University organization.

There may be on the University staff persons who are particularly well qualified to undertake or direct research in a particular field. Such persons may, however, be highly competent teachers. Diversion of their efforts to research, not required by the teaching function, can be justified only by the importance of the research.

Universities may provide more effective conditions for research than would obtain elsewhere. It has been the traditional policy of

Universities to permit the widest possible latitude in the pursuit of knowledge by the staff. The production of knowledge responds to free enterprise.

Those close to educational problems are conscious of the limitations of our knowledge and understanding of educational processes, but confident that the effectiveness of these processes can be significantly increased by disciplined study of them. The interest in developing an organized and continuing program of educational research in Alberta is evidence both of concern and confidence.

The University believes that, because of the unique organization of its Faculty of Education, it can, with adequate support, provide the personnel, facilities and conditions for an effective program of educational research; and welcomes the opportunity to participate in it.

Greetings From Cooperating Organizations

The Department of Education extends best wishes for a successful and useful career to the newly established *Alberta Journal of Educational Research.* The problems of education are many and lie in a number of fields. The resolving depends upon many factors, including the harmonizing of varied points of view, public support, competent personnel, practical experience and others. But as in the resolving of any sort of problem it is most important to know the facts, and facts in relation to educational problems are often hard to come by. It is no doubt a reasonable assumption that the Journal, and the research which it expects to report, will be dedicated to the extension of our factual knowledge in education. We shall follow its progress with interest.

Dr. W. H. Swift
Deputy Minister of Education

Best wishes from the Alberta School Trustees for the success of the new venture, *The Alberta Journal of Educational Research.*

The Trustees believe that research into various educational questions, by trained personnel, can produce beneficial results. It might, in some instances, give the answers to some of the problems that confront us from time to time. That is why we support the Research Committee. However, to get the most good out of the findings the story must be told to interested people over a wider area than can be done by person-to-person contact.

So we wish the Research Committee success in its endeavors and the Journal in publicizing the conclusions.

R. J. Hennig, President
Alberta School Trustees' Association

During the past two years educationists in Alberta have been busy cutting chips from trees as they move forward in the field of research. The publication of this first issue of *The Alberta Journal of Educational Research* will serve as notice to the rest of Canada that yet another bit of educational trail-blazing has taken place in Alberta.

The Alberta Teachers' Association greets this Journal with two-fold pleasure. First, it is a tangible result of educational research in which the Association has had a part and which it could not have carried on by itself. Second, this has been an opportunity for our Association to work cooperatively with other educational bodies and agencies in a matter very important to education.

On behalf of the Alberta Teachers' Association I should like to congratulate and to thank those forward-thinking individuals in the Faculty of Education and the Department of Education who initiated the idea of the Alberta Advisory Committee on Educational Research. May our Association, in concert with others, push forward in research to the betterment of education within our province.

Frank J. Edwards, President
Alberta Teachers' Association

Looking over reports of Home and School Committees covering many years, I discovered that the desire to know how the educational performance in Alberta ranked was expressed frequently. How did it compare with previous performances, with other provinces, or with results obtained under other methods of teaching? Little educational research had been undertaken and the answers to these questions appeared largely as opinions rather than scientifically gathered data. The need for an unprejudiced, accurate measure became more and more apparent as new teaching techniques appeared, or as research in other related fields indicated the need for change in the educational field, or simply as the changing world presented challenges at home, at school or in the community. Today, we still need to know how we are doing in education. Facts revealed through honest research will provide the measure by which we judge both past and present performances in order to plan constructively for the future.

For these reasons, I feel that the research projects undertaken through the Faculty of Education Research Committee and authorized by the University of Alberta will meet a real need in education. The publication of *The Alberta Journal of Educational Research* will carry the results of these projects to all persons vitally interested.

The Director of Research, through whose vision and tireless efforts over many years the new program has been brought into

being, and other cooperating individuals and groups deserve the warmest praise.

The Alberta Federation of Home and School Associations Incorporated extends sincere congratulations on the achievement of this program. We realize that its beneficiaries will be "our children".

Mrs. D. A. Hansen, President
Alberta Federation of Home and School
Associations Incorporated

Research and teaching are properly regarded as twins, mutually assisting, reinforcing and supplementing each other. Even in education, where research must frequently be the collection and collation of facts, this is undoubtedly true.

For this reason the Faculty of Education is grateful to the cooperating organizations and to the Board of Governors of the University for making possible a continuous and sustained program of research and for the publication of this Journal. The Faculty is grateful particularly to the President of the University for his steady interest and constructive counsel.

For many years good research work has been done in the Faculty of Education. Unhappily no publication outlet has been available, in consequence of which library shelves tend to grow mouldy under research reports. In *The Alberta Journal of Educational Research,* reports on the more significant studies will from time to time appear. This should hearten research workers and enrich the fund of available knowledge.

In this enterprise we shall welcome the voluntary cooperation of competent workers within or outside the teaching profession. The Faculty staff is well qualified to assess the timeliness of proposed projects and to collaborate in their design and prosecution. We shall welcome research suggestions and support.

H. E. Smith, Dean
Faculty of Education

FACTORS ASSOCIATED WITH SCHOOL DROP-OUTS

ALBERT E. HOHOL

Principal, New Sarepta High School, New Sarepta, Alberta

The evidence of leading Canadian[1] and American[2] studies on school retention indicates that in the average public school system fifty per cent of the students who enter high school do not remain to graduate.

Incidence of Drop-Outs

Alberta's holding power is the highest in Canada. This must not be taken to mean that the drop-out problem in this province is not serious; it means only that Alberta compares favorably with the rest of Canada in holding power. Using fifth-grade enrolments as a base, census data[3] show that of 100 students who were in grade V in 1945, 42 reached grade XI in 1951 in Alberta. The comparable figure for Canada is 29. The Lazerte Report[4] showed that retention is best in Alberta, Saskatchewan, and British Columbia, in that order.

Further census data[5] show that in the ten Canadian provinces 57 per cent of urban children and 63 per cent of rural children, 15 to 19 years of age inclusive, are not attending school. The urban youth have completed 5.2 years of schooling, and the rural youth about 4.6 years. In 1951, of the 1,057,972 Canadian children from 15 to 19 years of age, 630,290 were not enrolled in schools, private or public.

In the United States, from 1946 enrolment data, it appears that of every 1,000 pupils who attended public elementary schools in grade V, only 453 were still in school when the final year of high school was reached. In terms of national totals, this means that each year a million to a million and a quarter children and youth are not completing high school. During the time required to complete one twelve-year cycle of schooling, somewhere between twelve and fifteen million children discontinue their education before the final year of high school. The range for the various states is very wide—from 204 high school seniors per 1,000 former fifth-grade pupils in one state, to 731 per 1,000 in another. In comparison, again employing the grade V enrolment, the Alberta survival rate index

1Canadian Education Association, **Your Child Leaves School**, p. 16.

2Harold J. Dillon, **Early School Leavers**, p. 9.

3Canadian Education Association, **First Report of the Canadian Research Committee on Practical Education**, p. 38.

4M. E. Lazerte, "Student Retention in Canadian High Schools", **The Alberta School Trustee XXIV**, p. 20.

5**Bulletin 11, Dominion Bureau of Statistics, 1951.**

is approximately 350 per 1,000. The index rate for Canada is approximately only 182 per 1,000.

Main Associated Factors

No one cause is responsible for school leaving. Many are forced by straitened financial circumstances to withdraw and go to work. Others lack sympathetic interest and encouragement at home. A few withdraw for health reasons, and some, especially girls, marry and drop out of school before reaching grade XII.

A very substantial reason for leaving school is that students become disinterested in or discouraged about their school programs. Young people will not remain in school if, rightly or wrongly, they believe that its program has little practical value for them. Such judgments are often in error, but young people themselves must be convinced of the worth of the school program if they are to remain voluntarily to complete it.

Although there is no single cause-and-effect relationship in the matter of dropping out of school, there are many selective factors that operate to determine how long a students remains in school. These factors, logically isolated, should operate differently at different levels. Low average intelligence should become a progressively more important factor as a child moves up through the high school grades. Attitudes, likes, and dislikes can hardly cause school leaving before age fifteen because of compulsory attendance laws. The operation of these attitudes is somewhat modified by the parents, but once the adolescent can earn his own money, his attitudes begin to determine behavior.

Different factors operate at different levels, and an absence of one does not preclude the operation of another. Many students who have high intelligence ratings quit school before graduation; when intelligence is not a factor, attitudes could still operate. Attitudes frequently relate to abilities and interests. A student who is mechanically inclined may drop out of a school if subjected to a narrowly academic curriculum. Did he do so because of the curriculum, or because of a cluster of abilities and interests?

It is apparent that the problem of early school leaving is concerned with a multiplicity of factors operating as a cluster. One investigator[6] of factors associated with school withdrawal had developed a list of 301; another[7] listed 85 which appeared to be most significant, and grouped them in these four categories: economic;

[6]Richard H. Dresher, **Factors in Voluntary Drop-Outs**, 1954, p. 24.

[7]A. E. Hohol, **A Review of the Evidence on the Problem of Why Youth Leave School**, p. 9.

achievement and ability; interests, likes and dislikes; personality and adjustment.

The following eight factors appear to be most closely related to early school leaving:

Economic status or occupation of parent

The evidence strongly indicates a relationship between economic status and dropping out of school, but a fatalistic view is not justified. Many children, despite economic handicaps, under effective guidance remain in school to improve their talents and win for themselves a good start in life.

Retardation, becoming overage

When the standards and policies of the school cause pupils to repeat grades and do work which they are hopelessly incapable of doing, the school produces extensive retardation which complicates the teaching situation. The elementary school must recognize its responsibility, for it contributes largely to the retardation which results in withdrawal from school. As absence, frequent transfers and health are related in a general way to this problem, an increasing sensitivity to these factors on the part of the elementary school is required.

Intelligence

If investigations of the drop-out problem have disclosed anything, it is that the intelligence of the drop-out is higher than most school administrators suspect, and that he has the mental capacity to do the work of the average high school. Teachers' marks, however, are a different matter; the drop-out fares worse than three-fourths of the graduates in this regard. This unfortunate paradox, average intelligence and poor marks, should awaken the schools to the curriculum needs and the guidance requirements of these young people.

It is evident from the results of many studies that low intelligence has been overrated as a primary cause of early school leaving. Many pupils did find the courses beyond their mental capacities and eliminated themselves or were eliminated by constant failures. It would be safe to say, however, that only a small percentage of adolescents are so deficient in mental ability that they cannot profit from some form of high school work.

Sex

Boys appear to leave school at an earlier age and in greater number than do girls (although the evidence is conflicting as to proportion). A notable difference from this trend in North America

occurs in England and Scotland, where the reverse is apparently the case.

Home status

The child who has reason to feel insecure or lacks the guidance and supervision of both parents is handicapped. He brings his problems and feelings to school, invariably with detrimental results. A home broken by death, divorce or separation markedly affects the lives of those in it.

Personality

Personal qualities such as a cooperative attitude, courtesy, dependability, ambition, self-confidence, initiative, leadership and resourcefulness are possessed by all pupils to some degree. In the few studies which attempted to discover whether these were related to the drop-out problem, the ratings were of necessity subjective. The evidence is, therefore, inconclusive.

Participation in extracurricular activities

Inasmuch as the extracurricular program helps to develop both vocational and avocational interests of youth, and makes significant contributions to the intellectual as well as the social development of young people, participation in this phase of the school program is regarded as an important factor in the holding power of the high school. These activities are the prestige and the fun phases of school life. Those who participate "belong" and are usually well adjusted and happy. The reverse is also true: the non-participating pupil is often unhappy and becomes a potential drop-out.

Pupil and parent attitude toward education

In the absence of a strong positive attitude toward education on the part of the pupil and parents the school has a formidable task in retaining young people until graduation.

Symptoms—How to Detect Drop-Outs

Dillon, Gragg and Tripensee[8] sought to determine which combination of factors notably associated with dropping out of school had predictive value. Is it possible to predict with any degree of accuracy whether a pupil will remain in school to graduate, or will drop from school because of his rating with respect to certain factors such as age, intelligence, economic status and retardation? It was thought that the school could institute certain adjustments in its program for those pupils of known vulnerability if it could be determined which factors primarily contributed to withdrawal.

[8]Ibid., p.1.

Predictive factors: Dillon's findings

1. Fairly consistent regression in scholarship from elementary to junior to senior high school
2. Frequent grade failures in the elementary school
3. High frequency of grade or subject failure in the junior and senior high school
4. Marked regression in attendance from elementary to junior to senior high school
5. Frequent transfers from one school to another
6. Evidence of a feeling of insecurity, or "lack of belonging" in school
7. Marked lack of interest in school work

It should be noted that economic need, while recognized as one of the causes related to dropping out, does not have the importance of the factors listed above.

Predictive factors: Gragg's findings

Gragg found the following factors as listed below:

Most significant	**Non-significant**
Retardation	Racial stock
Sex (boys 2:1)	Health status
Verbal intelligence	School attendance
School achievement (standardized tests)	School tardiness
Participation in extra-curricular activities	Personality ratings (home room teachers)
Membership in homes broken by divorce or death	Tenure of residence
Occupation of parents (managerial, clerical, professional and semi-professional more likely to be graduated)	Major subjects (English, mathematics, social studies and science)

According to Gragg, if one wishes to do something about drop-outs, he must obviously work well in advance of the time the pupil leaves school.

Predictive factors: Tripensee's findings

Tripensee studied various factors contributing to dropping out and found five which had high predictive value:

1. Ninth grade scholarship (School marks were averaged.)
2. Attitude toward graduation (This factor was rated high when the pupil showed an acceptance of the importance of a high school

education and a determination to complete high school even in the face of difficulties.)

3. General school adjustment (Many items including personality and social adaptability were considered.)
4. Age
5. I.Q. rating

Identification factors: Horowitz's[9] findings

Horowitz, a Philadelphia high-school principal, found that the following symptoms identify the drop-out:

1. Poor attendance
2. Poor reading ability
3. Subject failures
4. Personal maladjustment
5. Lack of active participation in school activities
6. Parental indifference, broken home or lack of parental control
7. Low financial status
8. Lack of interest in or dislike of a certain subject
9. Lack of warm pupil-teacher relationships

Identification factors: Nova Scotia guidance division[10]

The Nova Scotia guidance division selected eight leading symptoms of early school leaving:

1. Repeated failure in one or more subjects or grades
2. A consistently low record of achievement
3. Significant retardation in basic courses
4. Frequent absenteeism
5. Lack of participation in extracurricular activities
6. Indications of poor economic conditions at home
7. Indifferent or hostile attitude toward school
8. Behavior problems requiring frequent disciplinary action

Invariably, no single reason has been found as the cause for early school leaving. The same reasons are not operative in all communities; those which are common to a number of areas exert varying degrees of influence toward withdrawal. In general, there appears to be a multiplicity or cluster of factors.

Gragg reported that the failure of any criterion to measure absolute correlation between graduation and drop-out leads to the conclusion that dropping out is a result of several forces working concominantly. He states that any investigator seeking to gain a better understanding of the drop-out problem must shift from the traditional approach of endeavoring to isolate the causes of drop-out

[9]Lewis Horowitz, **Meeting the Drop-Out Challenge.**
[10]Nova Scotia Guidance Newsletter, **The Potential Drop-Out,** p. 7.

to a new one seeking factors which are most closely associated with the problem.

While no factor operates to the extent that all drop-outs fall on one side of the line and all graduates on the other, it is possible to establish critical points which differentiate between a majority of the graduates and a majority of the drop-outs.

How to Compute Drop-Outs

Since retardation and persistent failure appear to be the most prominent causes of dropping out, Stock[11] used grade-age placement and low marks to predict drop-outs. His procedure follows:

1. List all students in a grade alphabetically.
2. List age in years, months, as in September.
3. List for each an academic average made up of marks in English, social studies and mathematics.
4. Rank each from high to low average.
5. Record rank and average opposite each name.
6. Calculate age limits within which a child would be in a certain grade were he not retarded. Base this calculation on the student's age at entry in grade I.
7. Underline in red the names of all the students whose age is greater than the limits for September for the grade studied.
8. Underline in blue the names of students whose rank places them in the lowest quarter of their class.

The result is three groups:

1. Those whose names are not underlined and who are least likely to leave school before graduation.
2. Those underlined in red or blue (not both). These are possible school leavers who usually can be held if effort is put forth to save them.
3. Those whose names have been underlined in both red and blue. These are the most probable drop-outs. They can only be saved for graduation by a real effort on the part of the counselor, the faculty, and the administration.

What Can Be Done?

Various suggestions have been made for keeping pupils of high-school age in school. The recommendations of many studies are summarized here.

1. Develop a guidance program which is not limited to vocational matters but covers all the personal problems of youth. This

[11]Francis J. Stock, A Quick Method of Predicting Drop-Outs.

type of program requires the cooperation of the entire staff as well as the specialized knowledge of guidance experts. It should include a follow-up guidance service for those who must leave school.

2. Adjust the curriculum and methods of instruction to the abilities, needs and interests of the individual pupil. For some this may mean a part-time high school program integrated with part-time employment.

3. Provide facilities and service, including transportation, for rural areas.

4. Raise the age for compulsory education and raise the minimum age for employment. Provide means of enforcing the law.

5. Provide student aid for those who would be forced to leave school because of economic circumstances.

6. Raise the prestige of high school so that everyone will consider high school graduation a necessity.

Dillon offers several recommendations for reducing the number of drop-outs. Briefly, these are as follows:

1. Know the student as an individual.
2. Obtain the student's confidence.
3. Provide an educational program wherein the students can experience achievement.
4. Give grade repeaters new activities.
5. Demonstrate the relationship between education and life.
6. Provide occupational inclination.
7. Extend social experiences.
8. Give some personal recognition.
9. Provide for above-average students.
10. Establish a good record system.
11. Make use of the record.
12. Recognize signs of trouble.
13. Help students select the right courses.
14. Begin counseling early.
15. Allow time for home visits.
16. Secure parent interest and cooperation.
17. Secure public support.

The authors of *Improvement of Holding Power*[12] state that, reduced to its simplest form, the improvement of the holding power of a given school simply means better education. The statement appears fundamentally sound. If our schools are to serve better the needs of society and of those who now graduate, as well as the needs of those who now withdraw, the following changes are indicated:

1. There must be a broad acceptance on the part of parents and

12State Education Department, New York, **Improvement of Holding Power.**

teachers of the need for universal secondary education for all normal youth, and the formulation of a philosophy of education which accepts this thesis as fundamental to basic improvement.

2. The establishment of an adequate guidance program in all secondary schools must take place without delay. The varied interest and abilities of youth now attending high school make necessary a thorough study of each individual before the school can plan appropriate educational and vocational programs which will meet the needs of the individual pupils.

3. The implications of universal education should be obvious to the classroom teacher. Methods, techniques, materials and equipment must be adapted to the differences in individuals at both ends of the ability range. The pupil must also be accepted as a person and regarded as one possessing a normal yearning for achievement, recognition, security and new experiences.

There are needless barriers to complete adjustment in many of the practices existing in our schools today. By slavish adherence to tradition, we sacrifice the educational right and need of half of our youth.

4. Our curriculum does not sufficiently reflect social-economic changes nor the purpose of education in a democracy. Youth is practically unemployable until the age of eighteen; the schools should experiment until they find that combination of general and specialized education which will best meet the needs of those who terminate their education in high school.

5. If democratization of education is to be achieved, then the inconsistencies between philosophy and practice must disappear. Diploma requirements, standards, marking systems, promotion policies are all too often inconsistent with the schools' policy of education, thus forcing a pupil out of school.

Finally, the authors stress that it must be recognized that better holding power can come only from leadership—leadership of the entire high school faculty. Too many in the profession are not aware how low the holding power of the school is. There must be wide dissemination of information regarding the issues involved. Then and only then can there exist a public sensitive to retention and a profession determined to improve education opportunities for all youth. Leadership in education has made our schools what they are —the biggest investment any society has ever made for its greatest resource, its youth.

Recommended Research

The prime requisite for the study of drop-outs is uniform pupil accounting. School systems need to devise and agree on a plan for

a basic procedure in this phase of school administration. Such a procedure would make possible the collection of data concerning holding power, drop-outs, and school leavers. The data would also be available for purposes of comparison and for evaluating results of experimental or on-going curricular and administrative programs. This type of study can be done in any school, part of school, or school system.

A profitable study in which any school can engage is the determination of the extent to which such associated factors as retardation in basic courses, intelligence, parental occupation, repeated grade failure, frequent absenteeism, lack of participation in extracurricular activities, and behavior problems may be operative in its own system.

Another fruitful area requiring much examination is that of school costs. There is good evidence[13] to indicate that such costs, particularly as they pertain to hidden fees in membership dues, athletics, entertainment, crests and rings, graduation and other expenditures, do—especially in association with other factors—influence toward early school leaving.

Francis Stock's age-grade placement and low marks procedure to predict drop-outs is an excellent stand-by, and one that can be done comparatively easily and quickly by any teacher. While his technique is not foolproof, it gives the faculty and counselor something concrete in the way of knowing most of the probable drop-outs, often before the students themselves are aware that they are thinking about dropping out.

As a current study, the work conducted by Waldon Smith under the direction of Dr. Stanley Clarke of the University of Alberta will attempt a critical evaluation and validation of predictive criteria as set down in the study by this writer. The design is an intensive study of all the students of grades VII-XII in the Winfield School at one time, including attendance, retardation, intelligence, interests, attitude towards schooling, participation, personal adjustment, and socio-economic status of parents as well as parental attitude toward schooling. On the basis of these data the investigators will attempt to predict which students will drop out of school. Verification is possible in terms of actual drop-outs at the end of two years. A critical analysis of discrepancies will then follow.

This is a two-year study that will require the cooperation of the school faculty, the school board, the superintendent, and the parents. It is offered here as an example of what is possible in the field of investigation. If Smith succeeds in establishing predictive criteria

[13]Harold C. Hand, **Do School Costs Drive Out the Youth of the Poor?**, p. 104.

operative in his community, the school is in a position to take positive steps to retain its youth in school.

Most school systems are not set up to conduct elaborate research of this kind. But to be conscious of the seriousness of the problem, to take some steps to identify the drop-outs, and to keep them in school is within the scope of every school system. It is in fact a duty.

BIBLIOGRAPHY

Alberta Department of Education. Annual Report, 1952. Edmonton, Queen's Printer.

Canadian Education Association. "The First Report of the Canadian Research Committee on Practical Education." *Canadian Education* IV:2 (March, 1949). 92p.

Canadian Education Association. *Your Child Leaves School.* Second Report of the Committee, February, 1950. 127p.

Dillon, Harold J. *Early School Leavers, A Major Educational Problem.* New York, National Child Labor Committee, 1946. 94p.

Dominion Bureau of Statistics. Bulletin II. Ottawa, Queen's Printer, 1951.

Dresher, Richard H. "Factors in Voluntary Drop-Outs." *The Personnel Guidance Journal* (January, 1954). 63p.

Gragg, William Lee. "Some Factors Which Distinguish Drop-Outs from High School Graduates." *Occupations* (April, 1949).

Hand, Harold C. "Do School Costs Drive Out the Youth of the Poor?" *Progressive Education* 28 (January, 1951), pp. 89-93.

Hohol, A. E. *A Review of the Evidence on the Problem of Why Youth Leave School.* Unpublished Dissertation, Edmonton, University of Alberta, 1954. 279p.

Hollingshead, August B. *Elmtown's Youth.* New York, John Wiley and Sons, Inc., 1949. 480p.

Horowitz, Lewis. "Meeting the Drop-Out Challenge." *Viewpoints on Educational Issues and Problems.* Philadelphia, University of Pennsylvania, September, 1952. 382p.

LaZerte, M. E. "Student Retention in Canadian High Schools." *The Alberta School Trustee* 24:2 (February, 1954), pp. 19-23.

Nova Scotia Guidance Newsletter, *The Potential Drop-Out.* Department of Education, Bulletin 7:3 (February, 1953).

State Department of Education, New York. *Improvement of Holding Power.* The University of the State of New York, 1952. 56p.

Stock, Francis J. "A Quick Method of Predicting Drop-Outs." *Personnel and Guidance Journal* (January, 1954). 63p.

A SURVEY OF READING ACHIEVEMENT IN ALBERTA SCHOOLS

ANNE CARMICHAEL
Assistant Supervisor of Elementary Education, Edmonton City Schools
and
ROBERT E. REES
Superintendent of Schools, County of Grande Prairie No. 1

The Problem

The present curriculum in Alberta is so organized that for most children reading is a major tool of learning. It is therefore necessary that frequent appraisals of reading be made. Russell[1] contends that evaluation is one of the most effective ways of preventing crystallization or deterioration of an instructional program.

In May, 1953, Dr. R. E. Rees and Dr. G. M. Dunlop carried out a study of achievement in reading and language in Alberta. The survey was sponsored by the University of Alberta, approved by the Alberta Department of Education, and assisted by the Edmonton Elementary Teachers' Association. The data obtained from this survey was expected to reveal the levels of reading achievement in Alberta schools, the extent to which Alberta children approach the test norms, the nature of progress in reading after children leave the primary grades, and the relative achievement of pupils in different types of school organization in Alberta.

Many detailed investigations of the test data are in course of preparation. The present study is concerned with the gross results of the California reading tests administered in grades IV and VII. These data were expected to indicate whether or not the status of reading achievement in Alberta schools was comparable with reading achievements elsewhere, and whether or not it was uniform throughout the province. It was hoped, too, that the data might serve as a guide to teachers and school officials endeavoring to improve instruction in reading at all levels.

Related Studies

Despite the periodic charges of retrogression in present reading achievement, research indicates that pupils in today's schools attain higher scores in reading comprehension than did children attending schools thirty years ago.

Gray[2] administered the same tests in oral and silent reading to elementary pupils in Michigan in 1916 and again in 1948. He found

1N.S.S.E., **Forty-Eighth Yearbook**, Part II, p. 285.
2**Encyclopedia of Educational Research**, p. 996.

little or no superiority for modern schools in oral reading or in speed of reading, but distinctly higher scores in reading comprehension. Elizabeth Woods[3] compared reading achievement among sixth-grade pupils in Los Angeles between 1923 and 1933. Children of the later period had scores that averaged higher by half a grade. In 1948 Finch and Gillenwater[4] found that the teaching of reading in Springfield, Missouri, was more successful in producing the outcomes measured than it had been sixteen years before.

Although there has been but little reading research in Alberta, the Department of Education[5] compared the readings results of three thousand grade VI pupils in 1947 and in 1953. The 1953 sample showed a slight increase in reading achievement, but the increase was not statistically significant. It is hoped that the present survey will serve as a basis for comparative studies in the future.

Experimental Design

Since the testing of all elementary and junior high school pupils in Alberta was a physical and financial impossibility for the 1953 survey, it was decided to draw two thousand pupils from each of the two grades—IV and VII. Two hundred pupils from each grade were selected randomly from each of the five typical organizational units—large urban, small urban, town, graded rural and ungraded schools. Because of the similarity of conditions existing in the two urban areas, the committee in charge of the survey decided to combine the two into one sample.

In order to obtain a sample that would represent all types of Alberta school children, the committee divided the province into eight areas according to geographic, socio-economic and ethnic factors. Eight towns representative of these areas were randomly selected from those with a resident school population between 250 and 1,000. Lethbridge and Edmonton, representing two widely separated parts of the province, were randomly chosen to provide the urban sample.

The sample drawn from each area was roughly proportional to the total school population: for example, if twenty per cent of the town school population lived in a particular town, then twenty per cent of the town sample was drawn from that centre. It was not so simple to obtain a rural sample that would represent typical areas throughout the province. In order to make a valid comparison between reading achievement in graded and ungraded schools, only rural residents attending graded school could be used in the graded

[3]L. Raths and P. Rothman, "Then and Now," N.E.A. Journal 41, p. 214.
[4]Ibid.
[5]Alberta Department of Education, Curriculum Branch, report on file, January, 1954.

rural sample, while pupils of one-room rural schools composed the ungraded rural sample.

All pupils in each randomly drawn class were tested in order to forestall the selection of superior pupils. Surplus papers were withdrawn randomly by members of the survey committee before the tests were scored.

In order to ensure the most uniform conditions possible, all persons administering tests were given explicit instructions, and in some rural areas the superintendents administered the tests themselves. The test papers from the various schools in the sample were forwarded to Edmonton, where they were marked and scored. The results were posted to individual data cards which became a permanent file for future investigations.

From the information on the data cards, frequency tables were compiled for each of the eight samples in each of the thirteen sections of the reading tests. The freqency tables formed the basis for the statistical analyses of test scores.

The data were interpreted through the use of measures of central tendency and variability of each of the various groups in the sample. The size of the sample, almost two hundred in each group, justified the short method of calculating the mean scores for each section of the tests. In comparing the relative achievement of the four different samples of each grade, the differences between the mean scores were calculated and the critical ratio of each difference was tested against the table of *t*. The null hypothesis was rejected at the .01 and .05 levels of confidence.

The Testing Instruments

Form AA of the Elementary and Intermediate California Reading Tests was used in the 1953 survey of reading achievement in Alberta. Other tests might have given different scores, but they probably would have ranked the pupils in the same order. From a study of grade levels, Pflieger[6] concluded that the age-grade levels of individuals are dependent, in part, upon the particular test used.

The California Reading Test is designed not only to measure achievement, but to provide a basis for planning remedial instruction in the areas where individuals may be deficient. Each form of the test is divided into two parts: Reading Vocabulary and Reading Comprehension. The scores obtained on both parts are combined for a Total Reading score.

The vocabulary test for elementary grades consists of four subsections. Section A measures the ability to recognize the similarities

[6]E. F. Pflieger, "A Study of Reading Grade Levels," **Journal of Educational Research** 42, p. 541.

and differences in the printed forms of words. Test B measures the ability to identify words seen with words pronounced. The remaining subtests in Vocabulary, C and D, measure the extent of the pupil's knowledge of word meanings by requiring him to match words first with antonyms and then with synonyms.

The Comprehension part of the California Reading Test measures three reading skills—the ability to follow specific directions, the extent of the child's familiarity with reference and library skills, and the ability to interpret the author's meaning in material read. The comprehension section of the intermediate test parallels that of the elementary test, but the skills tested are at a higher level.

The vocabulary test for intermediate grades does not resemble its elementary counterpart. Words are drawn from four principal areas of the school curriculum—mathematics, science, social science and general vocabulary. Twenty words in each area are to be identified by matching each with antonyms selected from a list of four following words.

The California Reading Tests are highly regarded by experts in the field of reading.

> The Elementary Reading Test is especially well adapted for survey and diagnostic purposes. . . . The results can be readily comprehended, interpreted and applied by classroom teachers.
>
> The tests in the Intermediate series appear to satisfy the criterion of validity. The reliability, too, is adequate, and the diagnostic features of the test are admirably constructed. . . . At present these tests have no equal as practical survey and diagnostic instruments.[7]

Although the authors of the California Reading Test claim that it is a power test rather than a speed test, Flanagan[8] noted that one boy gained 1.2 grades in vocabulary and 3.5 grades in comprehension when he was allowed an additional eleven minutes to complete the test. Flanagan therefore recommended that the authors be more specific about timing the different parts of the test. However, he did support Witty's recommendation of the California Reading Tests as valuable instruments for appraising the progress of pupils in the important skills of vocabulary and comprehension.

The Status of Grade Four Reading Achievement in Alberta

The main purpose of the Alberta survey of reading achievement was to provide accurate and unbiased information about the reading performance of pupils on the basis of the California Reading Tests. Table I contains the mean scores, the standard deviations and the standard errors of the means for each of the four subsamples of grade IV pupils.

[7]**Third Mental Measurements Yearbook**, p. 15.
[8]**Fourth Mental Measurements Yearbook**, pp. 568-570.

TABLE I

MEAN SCORES FOR FOUR SUBSAMPLES OF GRADE FOUR PUPILS IN VOCABULARY, COMPREHENSION, AND TOTAL READING

Sample	Vocabulary			Comprehension			Total Reading		
	M.	S.D.	S.E.	M.	S.D.	S.E.	M.	S.D.	S.E.
URBAN	71.73	7.58	.41	26.50	5.79	.31	98.17	13.65	.73
TOWN	70.42	9.56	.66	26.31	5.63	.39	96.71	13.84	.96
G. RURAL	67.35	10.72	.73	24.17	6.21	.42	91.35	16.05	1.09
U.G.R.	62.75	12.85	.95	22.52	6.31	.47	85.61	18.05	1.33

Note: M—Mean; S.D.—Standard Deviation; S.E.—Standard Error of Mean.

In grade IV, urban pupils obtained the highest mean scores for each part of the reading test, while pupils in ungraded rural schools obtained the lowest mean scores in vocabulary, comprehension, and total reading. The reverse order prevails in the standard deviations, indicating that the greatest degree of variation from the mean exists in the sample from ungraded rural schools.

The differences between the means of the four subsamples were tested for significance against Fisher's table of *t*. The comparisons appear in Table II.

TABLE II

COMPARATIVE ACHIEVEMENT OF GRADE FOUR PUPILS IN VOCABULARY, COMPREHENSION, AND TOTAL READING EXPRESSED IN MEAN DIFFERENCES

Sample	Vocabulary			Comprehension			Total Reading		
	T.	G.R.	U.G.R.	T.	G.R.	U.G.R.	T.	G.R.	U.G.R.
URBAN—									
Dif.	1.31	4.38	9.13	.19	2.33	3.98	1.21	5.20	8.28
C.R.	1.69	5:23	6.26	.38	4.46	7.07	1.46	6.82	12.56
Sig.	.....	.01	.01	.....	.01	.01	.....	.01	.01
TOWN—									
Dif.		3.07	7.82		2.14	3.79		5.36	11.10
C.R.		3.12	5.05		3.73	6.21		3.69	6.77
Sig.		.01	.01		.01	.01		.01	.01
G. RURAL—									
Dif.			4.75			1.65			5.74
C.R.			3.01			2.62			3.34
Sig.			.01			.01			.01

Note: T.—Town; G.R.—Graded Rural; U.G.R.—Ungraded Rural.
Dif.—Difference; C.R.—Critical Ratio; Sig.—Significance.

The statistical analysis verifies the naive comparisons of reading achievement that appeared in Table I. Grade IV pupils in urban

and town schools exhibit superiority over pupils in graded and ungraded rural schools in vocabulary, comprehension, and total reading. All differences are significant at the .01 level.

Although the urban means for vocabulary, comprehension and total reading are superior to the town means, the differences were not significant in a single instance, and must therefore be attributed to accidents of sampling.

In the three subscores for reading, the graded rural means were significantly superior to those of the ungraded rural at the .01 level of confidence. In short, the analyses indicate that in the three measures of attainment in grade IV reading, urban and town pupils rank highest, graded rural pupils rank second, and pupils of the ungraded rural schools rank lowest.

The significance of a difference between means is contingent upon the homogeneity of the variance of the samples under comparison. From Table I it is evident that variability tends to increase especially as between the urban and town samples and the two rural samples. Since marked heterogeneity of variance invalidates the ordinary test of mean differences, the extent of the difference in variance was checked. In vocabulary all differences in variability were significant except for that between town and graded rural samples. In comprehension the differences were not significant. In total reading the differences between urban and town and graded rural and ungraded rural standard deviations are not significant. All other differences are significant to the .05 or .01 levels. Recourse to the Cochran and Cox test of the significance of the differences of means where the variance is not homogenous confirmed the earlier findings already indicated in Table II.

The Status of Grade Seven Reading Achievement in Alberta

Table III records the achievement of grade VII pupils in Alberta schools as measured by the California Intermediate Reading Test.

TABLE III

MEAN SCORES FOR FOUR SUBSAMPLES OF GRADE SEVEN PUPILS IN VOCABULARY, COMPREHENSION, AND TOTAL READING

Sample	Vocabulary			Comprehension			Total Reading		
	M.	S.D.	S.E.	M.	S.D.	S.E.	M.	S.D.	S.E.
URBAN	59.90	11.90	.64	35.65	7.56	.41	95.00	18.59	1.00
TOWN	59.73	10.95	.74	36.11	7.54	.51	93.80	16.50	1.14
G. RURAL	55.90	9.70	.76	33.84	6.21	.49	89.89	14.49	11.4
U.G.R.	52.24	11.85	.85	31.81	6.01	.57	83.72	19.50	1.37

Note: M—Mean; S.D.—Standard Deviation; S.E.—Standard Error of Mean.

Although the means of urban pupils are generally higher than those of the other three samples for grade seven, the mean in comprehension for town pupils is slightly superior to the urban. In all parts of the intermediate reading test both urban and town pupils have higher mean scores than either group of rural pupils, and pupils from graded rural schools have higher mean scores than pupils from ungraded rural schools.

TABLE IV

COMPARATIVE ACHIEVEMENT OF GRADE SEVEN PUPILS IN VOCABULARY, COMPREHENSION, AND TOTAL READING EXPRESSED IN MEAN DIFFERENCES

Sample	Vocabulary			Comprehension			Total Reading		
	T.	G.R.	U.G.R.	T.	G.R.	U.G.R.	T.	G.R.	U.G.R.
URBAN—									
Dif.	1.97	4.00	7.66	-.48	1.79	3.82	1.20	5.11	11.28
C.R.	2.01	4.03	7.20	.73	2.80	5.45	.79	3.37	6.59
Sig.	.05	.01	.01	.....	.01	.01	.....	.01	.01
TOWN—									
Dif.		2.03	5.69		2.27	4.30		3.91	10.08
C.R.		1.91	5.05		3.21	5.62		2.43	5.61
Sig.	.....	.01	.01		.01	.01		.05	.01
G. RURAL—									
Dif.			3.66			2.03			6.17
C.R.			3.21			2.70			3.43
Sig.			.01			.01			.01

Note: T.—Town; G.R.—Graded Rural; U.G.R.—Ungraded Rural.
Dif.—Difference; C.R.—Critical Ratio; Sig.—Significance.

The pattern of relative achievement established in grade IV is maintained generally in grade VII, with the four subsamples ranged in descending order from the urban sample through town and graded rural to ungraded rural. Contrary to the grade IV pattern of increasing variability of scores from urban through rural samples, the grade VII findings reveal no marked directional tendency of standard deviations.

The urban sample was significantly superior to the town sample in vocabulary. The differences between urban and town achievement in comprehension and reading were so small as to be attributable to sampling errors. In comprehension the town supassed the urban mean, although the difference was not significant. The urban mean was significantly higher than the graded and ungraded rural means for all three scores. The town surpassed the rural samples in all scores except one. Only in vocabulary did the town approach the graded rural mean to the point that the difference was not significant. The graded rural sample was significantly superior to

the ungraded rural sample in achievement in vocabulary, comprehension and total reading.

Again, as in the case of the grade IV findings, mean differences accompanied by significant differences in standard deviation were checked by the Cochran and Cox test. No alteration in findings resulted.

In addition to the three major areas of the reading test for each grade, subscores were recorded and compared. The salient features of reading achievement among Alberta pupils that were evident from major scores were evident also from the seven subscores for the reading tests in each grade. These features were the general superiority of urban and town achievement, and the superiority of graded rural reading attainment over ungraded rural.

In attempting to account for the pattern of achievement established by the four types of educational organization in Alberta it is well to consider the factors known to influence reading achievement generally. Those most often mentioned in research are capacity to learn, nature of instruction, type of environment, interest in reading, and availability of reading material.

Gates[9] attaches considerable importance to environment, but many studies place intelligence first in the list of influential factors. Gray[10] concluded that the correlation between general intelligence and general reading ability is highest in the fourth grade, relatively high in the fifth and sixth, and somewhat lower in the seventh and eighth. In another study Gray[11] concluded that reading achievement was particularly influenced by the efficiency of individual teachers, while Carillo[12] is reported to have found that superior reading ability was consistently associated with a small family, the number of books in the home, and a favourable attitude of the child toward school.

It might be assumed that the same factors influence reading achievement in both grades of the different Alberta groups tested. From Reid's study of the intelligence of the Alberta sample as measured by the California Test of Mental Maturity, it was found that mean scores for intelligence ranked the four subsamples in descending order from urban through town and graded rural to ungraded rural. This evidence appears to indicate that the superior reading achievement displayed by urban pupils may be influenced by a slight superiority in mental capacity.

In addition to intelligence, the type of instruction received by

[9]N.S.S.E., **op. cit.**, p. 8.
[10]W. S. Gray, "Summary of Reading Instruction, July 1, 1951, to June 30, 1952," **Journal of Educational Research** 46, p. 407.
[11]**Encyclopedia of Educational Research**, 1950, p. 979.
[12]Gray, **op. cit.**, p. 417.

the different groups of pupils in Alberta schools is probably an important factor in reading achievement as measured by the California Reading Tests. Ungraded rural schools in Alberta find it increasingly difficult to obtain or retain competent teachers because of the availability of positions in graded schools. Superintendents[13] report that improved classroom accommodation and more congenial teaching conditions in centralized schools are reflected in the quality and results of instruction.

Children tend to be conditioned by their environment. The lower level of reading achievement exhibited by rural children generally, as compared to urban and town children, may reflect an environment which directs their interests to the many activities of farm life, leaving little leisure time for the recreational reading so necessary for progress in reading achievement. The extent to which the scores of town pupils approximate the scores of urban pupils, particularly in reading comprehension, might indicate that there is no marked difference in the factors influencing reading achievement in both groups.

Although the pattern of reading achievement established in grade IV is reflected in the grade VII results, there are certain features of grade VII reading achievement which suggest the presence of influential factors peculiar to that grade. Table III reveals less evidence of a consistent pattern or direction of increase in variability in grade VII than was apparent in the grade IV sample.

The lack of consistency within the grade VII groups could be attributed to the tendency to discontinue formal reading instruction as pupils advance through the upper elementary grades, to the increased variety and complexity of the reading skills required at these grade levels, to the difficulty encountered when the carefully controlled and gradually increased vocabulary of the basic readers in the primary grades is replaced by a wide variety of material in which the vocabulary is relatively uncontrolled, and to the increasing range of reading levels that tend to develop unless a thorough program of developmental reading is carried on throughout the elementary grades.

The tendency to discontinue systematic reading instruction permits individual pupils to proceed at their own pace, and so increases the range of performance within a class, while the increase in retardation tends to lower the mean scores of pupils in the upper elementary grades. Wheeler[14] found that the amount of retardation increases in grades IV through VIII. Kottmeyer[15] found that 2,169

[13]Alberta Department of Education, **Forty-Seventh Annual Report**, p. 21.
[14]Margaret L. Kayser, "Research in Reading in the Elementary School," **Review of Educational Research** 22, pp. 65-75.
[15]W. Kottmeyer, "Improving Reading Interests in the St. Louis Schools," **Elementary School Journal**, September, 1944, p. 37.

out of 7,380 eighth grade graduates read below the norms for the sixth grade.

Comparison of Alberta Reading Achievement with the Test Norms

In order to evaluate properly the status of reading achievement in Alberta, the results were compared with the norms supplied by the authors of the California Reading Tests. The differences between the means for each Alberta group and the norms for each of the three major sections of the tests for grades IV and VII are recorded in Table V. A minus sign before a difference indicates that the Alberta mean was below the test mean in that particular subtest; in all other cases the difference favoured the Alberta subsample named at the left of the table. The critical ratio for each difference is noted except in the cases where the difference is noticeably greater than one for which a significant difference at either the .01 or the .05 level of confidence has been indicated already.

TABLE V

A COMPARISON OF ALBERTA AND CALIFORNIA MEANS FOR VOCABULARY, COMPREHENSION, AND TOTAL READING EXPRESSED IN RAW SCORE UNITS

CALIF.	URBAN		TOWN		GR. RURAL		UNGR. RURAL	
Mean	M.	Dif.	M.	Dif.	M.	Dif.	M.	Dif.
GRADE IV								
VOCAB. 63	71.73	8.73	70.42	7.42	67.35	4.35	62.60	–.40
C.R.						5.87		
Sig.		.01		.01		.01		.04
COMP. 19	26.50	7.50	26.31	7.31	24.17	5.17	22.52	3.61
C.R.								8.18
Sig.		.01		.01		.01		.01
TOTAL READING 82	98.17	16.17	96.71	14.71	91.35	9.35	85.61	3.61
C.R.								2.73
Sig.		.01		.01		.01		.01
GRADE VII								
VOCAB. 54.5	59.90	5.40	57.93	3.20	55.90	1.40	52.24	–2.26
C.R.				4.32		1.81		2.59
Sig.		01		.01				.01
COMP. 32.5	35.65	3.13	36.11	3.63	33.84	1.34	31.81	–69
C.R.						2.73		11.8
Sig.		.01		.01		.01		
TOTAL READING 87.5	95.00	7.50	93.80	6.30	89.89	2.49	83.72	–3.80
C.R.				5.43		2.14		3.68
Sig.		.01		.01		.05		.01

Note: M—Mean; Dif.—Difference; C.R.—Critical Ratio; Sig.—Significance. The minus sign—a difference in favor of the California norms.

Table V indicates that Alberta reading achievement generally is above the norms for the test, but there are a few exceptions. In vocabulary for grade IV the difference between the means of ungraded rural pupils and the California pupils is not significant at the .05 level of confidence. In grade VII vocabulary and total reading for the ungraded rural sample, the differences favor the California pupils at the .01 level of confidence.

The extent to which Alberta means exceed the test means, particularly in grade IV, shows the superiority in achievement on the California Reading Tests of the Alberta samples as compared with the normalization sample. Grade VII pupils in Alberta do not exhibit the same degree of superiority over the test means as their counterparts in grade IV. While the Alberta grade IV pupils from ungraded rural schools are above the test norms in Comprehension and Total Reading, their counterparts in grade VII are significantly below the tests norms in Vocabulary and in Total Reading. No significant difference was revealed between the California norms and the grade IV ungraded rural score in Vocabulary, the ungraded rural score in Comprehension, or the graded rural school in Vocabulary in grade VII.

Although the manuals for the California Reading Tests supplied no norms for the subscores in reading, the writers obtained a grade level score by drawing a line across the profile on the back of the test at the 4.9 level for grade IV and at the 7.9 level for grade VII. A comparison of the Alberta means for the subtests with this obtained California mean gave some indication of Alberta achievement on the subtest in relation to California grade-level scores.

Alberta pupils in grade VII do not appear to exceed the California pupils on the subtests so markedly as do Alberta pupils in grade IV. Grade VII pupils from ungraded rural schools in Alberta are below the California grade-level scores in all the subtests except the fifth, which measures the ability to follow specific directions. In mathematics vocabulary, social science vocabulary, general vocabulary and reference skills Alberta grade VII pupils generally are achieving close to the average for tests; but in science vocabulary, interpretations, and the ability to follow explicit directions urban and town pupils are above the test averages. In mathematics vocabulary, general vocabulary and reference skills Alberta pupils are closest to the average performance for the 7.9 grade level.

Among other things, the findings noted above may indicate a difference in emphasis on certain reading skills between California schools and Alberta schools. It could be, too, that the California Reading Test is not "culture free". Many of the items to be read

for questioning on content involve information about American affairs which, because of its familiarity, would be easier for an American student to read than for a Canadian.

However, if it is assumed that the California Reading Tests constitute an objective yardstick for measuring the reading achievement of Alberta children, two conclusions seem inevitable. First, reading achievement is highest in the urban sample, diminishing through town and graded rural to the ungraded rural sample. Second, the rate of increment in reading achievement is higher from school beginning to grade IV than it is from grade V to grade VII.

The second conclusion is not entirely unexpected. Diminishing progress in reading achievement from grades IV through VIII was noted by Wheeler[16] when she evaluated reading instruction from grades I to XII in Alabama. This trend would seem to indicate the need for prolonged formal reading instruction and for remedial work in the upper elementary grades, with continued attention to vocabulary in all areas of the curriculum.

> At one time reading was considered a general ability and achievement as appraised by general reading tests. . . . The basic premise underlying such procedures at any level, however, has been refuted by research. . . . While there are reading skills common to the various areas of the curriculum, there is enough difference in the nature and pattern of the skills characteristic of each area to warrant specific instruction. . . . Reading skills should be developed and applied systematically in every content field at all school levels. . . . Daily learning activities with subject matter materials provide the best opportunity for developing these skills.[17]

Alberta pupils in grade VII are achieving close to the average for the test in general vocabulary as well as the vocabulary of science and mathematics. In comparison with the achievement in grade IV it would appear that vocabulary development is not receiving sufficient emphasis in the upper elementary grades. Research suggests the importance of vocabulary in all reading achievement. "The possession of a rich fund of word meanings is prerequisite to adequate comprehension and interpretation in reading," says Berry.[18] G. H. Hilliard[19] supports her views.

D. H. Russell[20] believes that teachers can strengthen two factors influencing comprehension—meaning vocabulary and background experiences.

In two of the grade IV subtests in vocabulary an unusual distribution appeared. In word form, 74 out of 196 pupils in urban schools and 50 out of 183 pupils in ungraded schools had perfect scores. In

---

16Keyser, **loc. cit.**
17Elona Sochor, "Special Skills Needed for Reading Social Studies, Science and Arithmetic," **The Reading Teacher**, March, 1953, p. 6.
18N.S.S.E., **Forty-Eighth Yearbook**, Part II, p. 172.
19**Encyclopedia of Educational Research**, p. 966.
20D. H. Russell, **Children Learn to Read**, pp. 80-81.

word recognition, 107 urban and 44 ungraded rural pupils had perfect scores. Since the curves for word recognition skills are so decidedly skewed to the left, it may be assumed that these subtests do not measure Alberta achievement adequately.

The above conclusion is based on naive comparison only, but two investigators applied statistical procedures in examining the frequency distributions of the grade VII samples for vocabulary, comprehension and total reading. They found that the distributions for this grade exhibited no significant abnormalities except for comprehension in the case of the town sample. This distribution was definitely skewed to the left, and the investigators concluded that the negative skewness was due to some real but unknown causes. They recommended that this sample be retested with another form of the California Reading Test.

Conclusions

Analysis of the data obtained from the survey of reading achievement in Alberta led to the following conclusions:

1. Achievement in reading in grade IV shows the urban sample as superior, closely followed by town sample, then by the graded rural, and last, the ungraded rural sample.
2. This ranking is maintained for Total Reading, Vocabulary and for Comprehension.
3. The superiority of achievement of the urban and town samples over graded rural and ungraded rural samples is significant at the .01 level.
4. Achievement in reading in grade VII reveals the same result as in grade IV, with urban leading, followed by town, graded rural, and ungraded rural.
5. Only in Comprehension scores is there a departure from the above order. In this instance the town sample is slightly superior to the urban.
6. Variability in mean achievement in reading in grade IV increases from urban, through town, graded rural, and ungraded rural samples. No comparable pattern of variability is evident in the grade VII mean scores.
7. With one exception, the grade IV mean scores for the four Alberta samples are all superior to the California norms in Total Reading, Comprehension and Vocabulary. The exception is the ungraded rural sample, which follows below the California norm for Vocabulary.
8. The grade VII mean scores for the Alberta urban, town and

graded rural samples are superior to the California norms in Total Reading, Vocabulary and Comprehension.

9. The Alberta ungraded rural sample falls below the California norms in Total Reading, Vocabulary and Comprehension.
10. Comparisons with the California norms make it evident that reading achievement in Alberta from beginning grade I to grade IV is quite satisfactory, being in excess of a year's progress for each year of attendance.
11. The rate of progress in reading in Alberta between school entrance and grade IV is superior to the corresponding rate of progress in grades V, VI and VII in terms of grade placement on the California norms.

Recommendations

The writers are of the opinion that educators still face the challenging task of raising the reading competence of all Alberta school children so that they may read with increased independence and understanding in the content fields. Their recommendations follow.

1. The Alberta Government should do everything in its power to induce qualified and experienced teachers to accept positions in ungraded rural schools. The inducement might take the form of isolation bonuses, suitable living accommodation and more attractive schools.
2. The practice of organizing graded rural schools and providing transportation to them for rural children should be continued and extended in order that rural children may benefit from the more effective instruction offered in graded schools.
3. The status of reading achievement in all grades should be appraised at frequent intervals to determine the amount of progress and to prevent deterioration.
4. Consideration should be given to the desirability of prolonging systematic reading instruction into the junior high school, and the utilization of diagnostic procedures and remedial teaching where required in the senior elementary and junior high schools.
5. The workbooks accompanying the authorized basic texts should be examined and evaluated to make certain that the exercises provided for the pupils are designed to develop desirable reading skills rather than to provide a type of "busy work".
6. An effort should be made to enlist home and community support for a program of recreational reading among pupils of the upper elementary grades in all areas of Alberta where reading achievement is found to be below a reasonable standard.

Since frequent evaluation and appraisal of reading achievement and progress is not only desirable but imperative, the need for Alberta norms becomes apparent. The writers recommend the establishment of Alberta norms for the California Reading Tests. With provincial norms as a basis for comparison, future investigations might reveal the effect of prolonged systematic instruction on reading achievement.

BIBLIOGRAPHY

Alberta Department of Education. *Annual Reports,* 1947, 1950. Edmonton, Queen's Printer.

Anderson, John E. "Methods of Child Psychology," *Manual of Child Psychology.* New York, Wesley and Sons, 1946.

Broom, M. E., and others. *Effective Reading Instruction in the Elementary School.* New York, McGraw-Hill Book Company, 1942.

Buros, Oscar K., ed. *The Third Mental Measurements Yearbook.* New Brunswick, Rutgers University Press, 1940.

Buros, Oscar K., ed. *The Fourth Mental Measurements Yearbook.* London, Gryphon Books Ltd., 1953.

Caldwell, O. W., and Courtiss, S. A. *Then and Now in Education.* New York, World Book Company, 1924.

California Test Manual. Los Angeles, California Test Bureau, 1950.

Clark, W. W. *A Technical Report.* Los Angeles, California Test Bureau, 1950.

Durrell, D. D. *Improvement on Basic Reading Abilities.* New York, World Book Company, 1940.

Encyclopedia of Educational Research. New York, The Macmillan Company, 1950.

Finch, F. H., and Gillenwater, W. W. "Reading Achievement Then and Now." *Elementary School Journal* 49:8 (April, 1949).

Garrett, H. E. *Statistics in Psychology and Education.* New York, Longmans Green and Company, 1946.

Gerberich, R. J. "The First of the Three R's." *The Phi Delta Kappan* 23:7 (March, 1952).

Gray, W. S. "Summary of Reading Instruction, July 1, 1951, to June 30, 1952." *Journal of Educational Research* 46:6 (February, 1953).

Gray, W. S. "What Is the Evidence Concerning Reading?" *Progressive Education* 29:3 (January, 1952).

Kaplan, L. "The Attack on Modern Education." *The Phi Delta Kappan* 22:5 (January, 1951).

Keyser, Margaret Lee. "Research in Reading in the Elementary School." *Review of Educational Research* 22:2 (April, 1952).

Kottmeyer, W. "Improving Reading Interests in the St. Louis Schools." *Elementary School Journal* 44:1 (September, 1944).

Lindquist, E. F. *Statistical Analysis in Educational Research.* Boston, Houghton Mifflin, 1940.

National Society for the Study of Education. *Forty-Eighth Yearbook,* Part II. Chicago University Press, 1949.

Pflieger, E. F. "A Study of Reading Grade Levels." *Journal of Educational Research* 42:7 (March, 1949).

Raths, L., and Rothman, P. "Then and Now." *N.E.A. Journal* 41:4 (April, 1952).

Russell, D. H. *Children Learn to Read.* Boston, Ginn and Company, 1949.

Sochor, E. E. "Special Reading Skills." *The Reading Teacher* (March, 1950).

Sochor, E. E. "Special Skills Needed for Reading Social Studies, Science, and Arithmetic." *The Reading Teacher* (March, 1953).

Tait, A. T. *Bulletin No. 8.* Los Angeles, California Achievement Test Bureau, 1950.

Taylor, Christine D. *Studies in Reading,* Vol. 2. London University Press, 1950.

Tiegs, E. W. *California Test Manual.* Los Angeles, California Achievement Test Bureau, 1950.

True, J. A. "A Study of Interpretation in Reading." Master's thesis, Chicago University, 1922.

Walker, Helen. *Elementary Statistical Method.* New York, Henry Holt and Company, 1953.

Witty, P., and Coomer, Ann. "How Successful is Reading Instruction Today?" *Elementary English Journal* 28:8 (December, 1951).

Whipple, Gertrude. "Questions and Answers about Teaching Reading." *N.E.A. Journal* 41:6 (September, 1952).

A COMPARATIVE STUDY OF PUBLIC AND PRIVATE OWNERSHIP OF SCHOOL BUSES IN ALBERTA

ROBERT A. KIMMITT
Superintendent of Schools, County of Warner No. 5

The conveying of our boys and girls to school is an integral and vital part of the educational program in rural Alberta. Chief among the problems of pupil transportation is that of the ownership of buses. Specifically, should school buses be publicly or privately owned?

During the past few years the divisional boards have been so concerned with bulding schools that transportation has not received much consideration. In the main, ownership has been determined by expediency with little regard to the results of cost accounting or to the experience of others. However, with school transportation in Alberta now costing well over a million dollars a year, many school boards are trying to decide whether to own and operate their own buses or to use buses owned privately.

There has been relatively little systematic study of bus ownership in Alberta. Although individual boards are now attempting to analyze their own costs, there has apparently been no research on a provincial basis. It is of course to be expected that as time goes on the school divisions will keep more detailed and accurate records of bus operation and that more detailed information will be gathered yearly by the Department of Education. Those data should provide bases for continuing research.

The present investigation is an attempt to arrive at a tentative solution to the problem of ownership. Two kinds of evidence will be considered: research studies from the United States, and data from the Department of Education and selected school divisions in Alberta. Standards of service, cost, and administration will be used as criteria. Trends will be indicated.

Ownership of School Buses in the United States

In the U.S.A., ownership of school buses has become a major problem, with the result that there have been many investigations at national, state, and county levels. A study of this literature throws light on the Alberta problem.

Cost

Of the writers in the field of pupil transportation, two are outstanding, A. C. Lambert and M. C. S. Noble. Both have written

books which are now accepted as standard works on transportation. Lambert's book is cited below, and a letter received from him states his conclusions boldly. He says in part:

> I have assembled the facts on the issue since 1932. So also have other students of the matter. The evidence is perfectly clear. The city of Los Angeles has just this year had an object lesson, long to be remembered, on the excessive cost of operating pupil transportation by the method of private contract. I proved the same thing in a number of direct studies in Utah school districts.[1]

The over-all conclusions relative to bus ownership reached by M. C. S. Noble are evident in the following:

> Since 1925 more than a dozen highly comprehensive surveys have been conducted to determine the difference in costs which occur as the result of different methods of operation. Briefly summarized, all of these studies... indicate that contract methods are much more expensive than school ownership.[2]

Individual state surveys tend to confirm this view. In Oregon, for example, there are about 1,500 school buses in operation, of which about seventy-five per cent are publicly owned. The privately owned buses are reported to cost approximately twenty per cent more to operate than those publicly owned. In Iowa, available figures indicate that publicly owned buses cost ten dollars per pupil per year less to operate than those privately owned.

An extensive summary of research on bus ownership in the United States before 1940 is given by A. R. Meadows of Montgomery, Alabama. This summary includes reference to studies made in thirteen of the forty-eight states to determine the relative cost of privately owned and publicly owned buses. Of eight separate and independent studies carried out within these states, the steady conclusion was that the cost of operating publicly owned buses is less than that of operating privately owned buses.[3]

Indeed, this conclusion seems to represent what all investigators and authorities now state with respect to the cost of operation of school buses. No literature has come to the writer's attention which claims the opposite.

Safety

Authoritative opinion in the United States on the comparative safety of operation of publicly owned and privately owned buses is well represented by Noble, who writes:

> The author of this text, after visiting rural schools in forty states, is of the opinion that the average contract bus is markedly inferior to the average school-owned bus.[4]

[1]A. C. Lambert, letter to author.
[2]M. C. S. Noble Jr., **Pupil Transportation in the United States**, p. 203.
[3]A. R. Meadows, **Safety and Economy in School Bus Transportation**, pp. 179-194.
[4]Noble, **op. cit.**, p. 201.

In the state of Wisconsin it was found that privately owned buses consistently failed to meet the equipment standards maintained by district-owned and jointly owned buses. Similarly in Alabama it was found that thirty-eight per cent of publicly owned buses were of all-steel construction, while seven per cent of privately owned buses were of all-steel construction.

Letters received from directors of school transportation in the various states express the opinion that publicly owned buses are safer than privately owned buses. No evidence has been found to the contrary.

Administration

> The administrative arguments of keeping machinery functional to program and purposes, flexibility, organizational efficiency, lines of authority and check up, etc., are all on the one side, that of public ownership of buses. Of course, if the administration is uninformed, or is unwilling to take over the work which is properly theirs, that is another matter for some local case. The thing to do then is to change the administration, or educate it.[5]

Here again the prevailing opinion among authorities is that buses should be publicly owned. Better control is the main argument: publicly owned buses can be routed or rerouted as necessary and used flexibly for such things as field trips. Some school boards, it is true, appear loath to change to publicly owned buses because they believe their administration problems would increase. But this concern has no authoritative support.

Trend in ownership

Investigators have been anxious to find out how the percentages of publicly owned and privately owned buses have been changing in various states. Information was received from Minnesota, Kentucky, Iowa and Montana which showed a marked trend toward public ownership. The Office of Education, Washington, D.C., publishes a statistical sheet showing the number of buses in the United States which are publicly owned and the number privately owned. In 1950 there were approximately 100,000 buses in the United States, with 60,000 of them publicly owned.

A recognized authority on school transportation, E. Glenn Featherston, estimates that during the past ten years there has been a change from about forty per cent public ownership to more than sixty per cent public ownership of school buses. He estimates that in another ten years—as the advantages of public ownership become more fully recognized—there will be relatively few privately owned buses in the United States.[6] According to Noble's study of the

[5]Lambert, letter to author.

[6]E. Glenn Featherston, **Public versus Private Ownership of School Buses.**

forty-eight states, two-thirds of the school superintendents have declared a preference for school-owned buses.[7]

Ownership of School Buses in Alberta

For this phase of the investigation, information was received from the Department of Education on all of the school divisions in Alberta. More detailed information was secured by visiting the offices of five school divisions in southern Alberta. These five have had more experience than most of the others. Three of them, Lethbridge, Macleod and Foremost, rank first, second and third in the province for number of buses operated. Two of them, Taber and St. Mary's River, rank fifth and sixth. Further, these five are representative both of the thickly populated and sparsely populated regions, and of all-weather and dirt roads.

Service

Comfort. During the last few years there has been a marked improvement in the type of bus used by the divisions. For instance, in the five divisions studied it was found that there are no longer any half-ton trucks with home-made boxes. However, many students still ride to school in buses that the Alberta Highway Traffic Board classifies as B and C class conveyances. Mostly, these are one-ton chassis with panel bodies. The seats usually run lengthwise. In some cases the seats are padded, or perhaps the window space is increased. Aside from these panel bodies, there are many locally built bus bodies made wholly or mainly of wood and usually with longitudinal seats. In the main, an A class bus is factory built with all-steel body, padded cross seats, ample window space with safety glass, proper heatng and ventilation. Clearly, a bus of this calbre is more comfortable than is a B or C class bus.

For purposes of comparison, a check was made of all buses operating in the five southern school divisions to discover the number of class A buses publicly owned and the number privately owned. It was discovered that twenty per cent of the privately owned buses are class A, while fifty-six per cent of the publicly owned buses are class A. These figures would seem to indicate that where publicly owned buses are operated the youngster has nearly three times the chance of riding in a bus that qualifies for the A category than he would if he rode in a privately owned bus.

Information was received from a school bus company in the city of Lethbridge relative to the sale of various type buses to school divisions and to private contractors. The figures indicate that private individuals bought more of the small type factory or panel

[7]Noble, up. cit., p. 209.

buses and the divisions bought panels and larger buses. In some areas the lighter buses are no doubt better because of road conditions or sparsity of population or some other factor. But regardless of road or other conditions, private individuals did not buy the large buses. This means, of course, that where private buses were used the standard of comfort was lower.

Safety. Among the major factors determining the safety of a school bus are the age of the body, the type of body, and the driver.

Board members, parents and teachers differ in their opinions about the driver as owner and as non-owner. It is said, on the one hand, that if a driver owns his bus he will exercise judicious care in maintaining and driving it; on the other hand, that the driver of a public bus does a better job because in the first place he was chosen and perhaps trained as a driver. A further argument for public ownership is that the driver is completely under the control of the board—he may, for example, be easily dismissed. There is, however, no objective evidence to show any relationship between safe drivers and ownership of buses. Until proved otherwise it may be assumed that the proportion of good and poor drivers is the same for publicly owned buses as for privately owned buses.

It might be noted here that high school students have from time to time been used as drivers. Ambrose in an exhaustive study found that these students may be safely and economically used as school bus drivers provided they are carefully chosen, given definite training, and properly supervised.[8]

Evidence concerning the type of body in use by division and private owners in Alberta may be found in the study made by the Highway Traffic Board. Under the direction of C. J. Kenway, Technical Adviser, Highway Traffic Board, a report on the school bus situation in the province of Alberta was written in 1947. After a detailed check of 297 buses it was found that of the publicly owned buses sixty-nine per cent were A or B category, while of the privately owned buses forty-three per cent were in A or B category. Since the sample included nearly half the buses in the province, it indicates that school boards were operating a larger percentage of safer buses than were the private owners.

No study is available concerning the age of the publicly owned bus compared to the age of the privately owned bus. The school division secretaries, by and large, do not keep a record of the ages of private buses, which means that the investigator must interview each operator to determine the age of his bus. One private operator

[8]P. S. Ambrose, **The Use of High School Students as School Bus Drivers**, concluding chapter.

in the Lethbridge School Division operates a fleet of fourteen buses. It was found that the average age of his buses at the time of the investigation was 7.6 years. On the other hand it was found that the average age of the twenty-four buses owned and operated by the Lethbridge School Division was 2.5 years. That is, the privately owned buses were about three times as old as the publicly owned buses in this instance.

General efficiency. A questionnaire on bus ownership was returned by eleven principals in the Lethbrdge School Division. Serving their schools are fifty-five buses—twenty-five of them owned by the division and thirty privately owned. Eight of the principals claimed that publicly owned buses were more comfortable than those privately owned. Three saw no difference. Five thought publicly owned buses were more reliable. Two thought the privately owned buses were more reliable. Four found no difference. Eight thought the publicly owned buses could be better controlled by school authorities. Three saw no difference. Eight of the principals gave as their over-all choice publicly owned buses while three preferred privately owned buses.

Opinion was solicited also from ratepayers in the Lethbridge School Division. One hundred questionnaires were circulated among the ratepayers of eleven central schools. Fifty-three completed questionnaires were returned from nine of these schools. Unfortunately only five of the questionnaires came from ratepayers where both publicly owned and privately owned buses were used. All five, however, voted in favor of the publicly owned buses. The remaining questionnaires in general revealed more satisfaction from publicly owned buses than from privately owned buses.

To secure evidence on the reliability of both types, a check was made of bus reports in the Lethbridge School Division. This check covered 730 separate sheets which made up the record for the full year from January to December, 1950. The purpose of the check was to reveal the number of days missed by each bus, and the number of lates. The evidence, however, was not conclusive. Each bus, regardless of ownership, recorded an average of six lates for the whole year. Also, each recorded about four days missed each year.

Advantages of divisional buses were summarized as follows by the president of the Alberta Divisional Secretary-Treasurers' Association at their annual short course in June, 1948:

1. Better, more comfortable vehicles.
2. More direct and efficient control by the board.

3. No haggling over changes in route, increased mileage, bad roads, et cetera.
4. Continuity of service is assured.[9]

Cost

In Alberta there has been very little systematized cost accounting relative to school buses. It appears that complete and meaningful records showing the cost of operating public school buses in Alberta do not exist. However, to get a view of provincial over-all averages an analysis was made of the figures forwarded to the Department of Education by all of the school divisions in the province. Four unit costs (per day, per mile per bus, per pupil per day, per pupil per mile) were studied from all divisions in the province that operated at least fourteen school buses. An analysis revealed that the cost of operating publicly owned buses is consistently less than the cost of operating contract buses.

Of the five divisions studied in southern Alberta, two of them, St. Mary's and Foremost, have only privately owned buses. The other three, Taber, Macleod and Lethbridge, have both types of bus. The latter three have made considerable effort to set up a cost-accounting system which takes into consideration such factors as depreciation. Information from the files of Taber School Division show that the average cost per student mile for publicly owned buses was .006 dollars. The average cost per student mile for privately owned buses was .015 dollars.

A further comparison of costs was made between Macleod, where both types of ownership are in use, and Foremost, where all buses are privately owned. In Macleod the cost per pupil per mile for divisional buses was .009 dollars. For private buses it was .012 dollars. In Foremost the private buses cost .017 dollars. In many respects the two areas are comparable but in Foremost the cost was considerably higher.

A review of available literature indicates that it is important for school boards to set up their own bus garages or depots if the publicly owned bus is to be operated at less cost than the privately owned bus. And there must be supervision.

From the experience of the divisions in southern Alberta and from the figures of the Department of Education, it must be concluded that publicly owned buses are operated at less cost than are privately owned buses. This conclusion is in harmony with findings in the United States.

[9]**Report of the Proceedings of the Annual Refresher Course in School Administration, 1948, p. 71.**

Administration

No matter who owns school buses, the problem of administration is a growing one. Where numbers of pupils are transported, additional records are essential in the school division offices, increasing the work of the secretary-treasurer. There must be supervision of routes, a task now performed by the divisional trustees.

The administrative problems connected with private ownership have to do with finding somebody who will purchase the proper bus, making an agreement as to how much money he should be paid, and establishing other conditions of his contract. Often considerable time is spent each year finding new drivers or haggling with old drivers over their contracts. The admninistrative problems in the school office are not so great because all that is necessary is to make out a pay cheque once a month.

The administrative problems connected with public ownership have to do mostly with buying the buses and keeping them in operating condition under a competent driver. Considerable book work is necessary in the office if a publicly owned bus is to be properly accounted for.

Lambert comments as follows:

> On educational grounds and from the standpoint of flexibility in operation of the system, the case for district ownership is very clear. Where the amount of service is small or new systems are not very extensive, the contract method is often better. But for the large systems, and as a long-time policy, district ownership and management is the better method.
>
> Citizens and school administrators are coming to see that educational service together with economical use of public tax money is more important than contentment of local contractors or the convenience of school boards who wish to escape some of the problems incident to ownership and management of the transportation system.[10]

Probably the time will come in the Province of Alberta when the business of transporting students to school will be integrated under one transportation director in Edmonton, and the details of administration will be looked after by local transportation managers. This of course would radically change the present situation, in which trustees and secretaries are called upon to carry out many duties connected with publicly owned buses.

Trend in ownership

The Alberta Department of Education started publishing figures on publicly owned and privately owned buses in 1947. In the three years following, one-third of the buses added were publicly owned. More detailed figures, however, show a trend toward public ownership. In 1947 there were 697 buses in Alberta, twenty per cent of

[10]Lambert, **School Transportation**, p. 19.

them publicly owned. In 1950 there were 1,156 buses in Alberta, twenty-six per cent publicly owned.

If the cost figures used by Featherston[11] could be applied to Alberta, public ownership might save the province about half a million dollars annually.

Conclusions

To assist in answering the question "Should school buses be publicly owned?" the criteria of service, cost, administration, and trend have been applied to studies made in the United States and to data gathered in Alberta. Evidence from the United States is in almost complete support of the principle of jublic ownership. Most of the evidence in Alberta favors the same principle.

Recommendations

1. That all school boards keep an individual record of each bus, no matter who owns it, showing all items of cost.
2. That all divisions owning buses explore the possibility of setting up their own garages.
3. That school boards consider the advisability of purchasing some buses every year, and tend more and more toward public ownership.
4. That the Department of Education appoint a senior official as a director of school transportation.
5. That divisional boards employ a transportation manager to supervise the buses of one or more divisions.

BIBLIOGRAPHY

Alberta Department of Education. *Annual Reports,* 1947 ff. Edmonton, Queen's Printer.

Ambrose, Philip Spencer. *The Use of High School Students as School Bus Drivers.* Unpublished doctoral thesis, Columbia University, 1949.

Featherston, E. Glenn. *Public Versus Private Ownership of School Buses.* Washington, D.C., Office of Education, 1948.

Foulkes, J. G., and Beery, G. S. *A Study of Transportation of High School Pupils in Wisconsin.* Madison, Wis., Department of Public Instruction, 1938.

Fulmer, H. L. A. *A Statistical Study of School Transportation in South Carolina.* Columbia, S.C., State Department of Education, 1931.

[11]Featherston, op. cit.

Kenway, C. S. *Report on School Vans.* Edmonton, Highway Traffic Board, 1947.

Kenway, C. S. "Let's Talk About School Buses." *The Alberta School Trustee* XX: 4 (April, 1950).

Lambert, Asael C. *School Transportation.* Stanford University Press, 1938.

Meadows, Austin Ruel. *Safety and Economy in School Bus Transportation.* Wetumpka, Alabama, Wetumpka Printing Co., 1940.

Noble, M. C. S. Jr. *Pupil Transportation in the United States.* Scranton, Pa., International Textbook Co., 1940.

Reeder, Ward G. *The Administration of Pupil Transportation.* Columbus, Ohio, The Educator Press, 1939.

Operation of School Vans. Edmonton, Alberta, School Trustees' Association, 1948.

Report of the Proceedings of the Annual Refresher Course in School Administration. Edmonton, Alberta Division Secretary-Treasurers' Association, 1948.

Statistics on Pupil Transportation. Washington, D.C., Federal Security Agency, Office of Education, 1949-50.

School Transportation. Helena, Montana, Department of Public Instruction, 1950-51.

WHY TEACHING IS CHOSEN AS A CAREER

S. C. T. Clarke and W. Pilkington
Faculty of Education, University of Alberta

In Alberta today, as in other provinces, there is a teacher shortage. To meet this shortage, selective recruitment has appeared necessary to authorities charged with the responsibility of staffing our schools.

Why do people choose teaching as a career? Upon our insight into this question depends, in large part, the success of the recruitment program. The Alberta Recruitment Committee has not been without information. Aikenhead's study helped to clarify the decisive factors influencing those who might have entered teaching but did not.[1] Recent questionnaire studies in the Faculty of Education elicited from students further information, both fact and opinion, about why they chose teaching.[2]

Since all teachers trained in Alberta receive their preparation at the University of Alberta, the Faculty of Education offers peculiar advantages in coming at the problem. The present investigation, then, continues and extends the questionnaire studies noted above.

Methods and Procedures

The questionnaire was originally developed through the cooperation of first-year classes who presented some seventy reasons for entering teaching. These were reduced to avoid repetiton. In 1952-53 the first questionnaire was tried out on all classes. After revision, the first-year classes again worked through the questionnaire in 1953-54. The final revised form was given to the 1954-55 classes, with 124 first-year Bachelor of Education and 352 Junior Elementary students participating.

The questionnaire was organized under the following headings:

1. General Information
2. Reasons for Choosing Teaching
3. Influences For and Against Your Choice
4. Sources of Information About Teaching

The test was administered so as to secure the most complete and reliable answers possible. It was given in the third week of attendance, and in class time. Students were told that the results would be used to help solve the teacher shortage and so provide educa-

[1] J. D. Aikenhead, **To Teach or Not to Teach.**

[2] S. C. Clarke, "Why Young People Go In for Teaching," **The A.T.A. Magazine** 32:10; H. C. Melsness, "More Information, Please," **The Alberta School Trustee** XXIII:6.

tional services for more children. Except in one class, names were not required.

This exception was made in an effort to validate. It was explained to the class that any questionnaire is to some extent like a strait-jacket, and that each student would be interviewed in order to give him an opportunity to explain in detail the factors which caused him to chose teaching. It was emphasized that this was not a test of memory[3] of what they had checked on the questionnaire, but an effort to validate for the total group.

The results were tabulated, classified, and examined to see what influences appeared to appeal most frequently and most strongly to young people who had just entered their teacher training.

Findings

When do young people make up their mind to enter teaching?

Table I shows that 83 per cent of the students in the Bachelor of Education[4] program decided to enter teaching during or after Grade X, while the corresponding figure for the one-year Junior Elementary[5] program is 65.6.

TABLE I

GRADE WHEN TEACHING WAS CHOSEN

Program	Pre-School	1	2	3	4	5	6	7	8	9	10	11	12	After 12	Total
Jr. E.	12	14	6	9	8	10	11	7	15	29	37	37	79	78	352
B.Ed.	1	1	0	2	1	1	3	1	5	6	16	11	33	43	124

The home background of Junior Elementary students appears to make no appreciable difference in time of choice. Sixty-four per cent of students whose home was a farm chose teaching as a career during or after Grade X, while 66 per cent of those from towns and cities made their choice of teaching during or after Grade X.

In the interview validation it was found that 52 out of 61 interviewed made no change in the statement of when they decided to enter teaching. Five persons changed the time of decision by one grade, and four persons by two grades. The interviews demonstrated that these changes were in the nature of specifying whether the individual was "thinking about it and had an inclination for teaching," or had made a final decision.

[3]Q. McNemara, "Opinion-Attitude Methodology," **Psychological Bulletin** 43, p. 313.

[4]The Bachelor of Education course is a four-year degree program with certification at the end of the second, third or fourth year. See Faculty of Education Calendar, University of Alberta, 1954.

[5]The Junior Elementary course is a one-year teacher-training program leading to permanent certification after two years of successful experience.

Why do prospective teachers choose a particular program?

In the questionnaire, students were asked to write the reasons for their selection of the B.Ed. or Junior Elementary program. These reasons were then classified and tabulated as shown in Table II.

TABLE II

REASONS FOR CHOOSING A PARTICULAR PROGRAM

BACHELOR OF EDUCATION (124 Students)			JUNIOR ELEMENTARY (352 Students)		
Rank Order	Reason	Number	Rank Order	Reason	Number
1.	Adequacy of training	60	1.	Finances	252
2.	Finances	51	2.	Immediacy of a career	107
3.	Entrance to B.Ed. degree	22	3.	Vocational exploration	100
4.	Vocational Exploration	9	4.	Lack of educational background	85

Adequacy of training includes such statements as "I don't think one year is enough training", "I think the B.Ed. is a better program", "I wanted a good grounding in mathematics (science, house economics), etc.". *Finances*, for the B.Ed. group, includes "I could afford two years but not four", "I could get a bursary", "financial reasons" (not elaborated); for the Junior Elementary group, "funds not available for more than one year", "financial reasons", "eager to earn money as soon as possible". The Junior Elementary people placed emphasis upon the short course, with its one year of training. In both groups *vocational exploration* included such ideas as "to see if I would like teaching", "to discover whether or not I have the required ability".

The intervew valdation found that 41 out of the 61 interviewed had made an adequate written statement of reasons for choosing the program they did. Of the remainder, 18 added reasons during the interview which were not recorded on the questionnaire, without changing their recorded reasons. Two individuals gave wholly different reasons during the interview, indicating that the questionnaire answers were not valid.

What reasons do students give for choosing teaching as a career?

The questionnaire contained a list of eighteen statements which had been shown by three previous tryouts to include the most frequently chosen and most important reasons why students choose teaching. Each student checked the statements which indicated why he chose teaching. In additon, he placed his five most important reasons in rank order.

The first choice received a weight of five, the second a weight of four, and so on down to a weight of one for a fifth choice. The results of the frequency and importance of reasons for choosing teaching are presented in Table III.

TABLE III

REASONS FOR CHOOSING TEACHING

REASONS	B.ED.		JR. E.	
	No.	Wtg.	No.	Wtg.
1. I like working with children	114	394	315	1206
2. I thought teaching would bring me the greatest satisfaction and happiness	106	340	293	759
3. I wanted to serve society	98	211	246	523
4. I knew I was sure of a job teaching	71	108	223	330
5. I knew I could get a job after one or two years of training	47	46	235	246
6. Admiration for a very good teacher influenced me to take Education	48	67	163	246
7. For me, teaching was a stepping stone to another career	26	74	106	231
8. I liked the short working hours of teaching and holidays with pay	48	54	173	202
9. I was able to get a bursary for the Faculty of Education	31	50	160	169
10. Teachers advised me to take Education	34	33	149	156

The first three reasons given in Table III are in correct rank order of both frequency and importance for both B.Ed. and Junior Elementary. This finding is supported by previous studies[6] and appears to be a very stable expression of the viewpoint of young people who have already chosen teaching as a career. These indications have significance for both recruitment and training of teachers.

It is to be noted that, in general, the order in which the statements are presented is the rank order of frequency and importance.

The data in Table III support the conclusion that young people who choose teacher training generally have altruistic reasons. It is reassuring to note that purely selfish motives take a subordinate position, both in frequency of choice and in the weight given to them. Contrary to the opinions expressed by many persons interested in education, it appears from this table that the example set by teachers in the classrooms is still an effective means of influencing students to take teacher training.

[6]Supra, notes 1 and 2.

The validation interviews indicated that the total results of the 61 interviews maintained the same rank order of the first three reasons as presented in Table III. Beyond that point, the rank order by interview no longer agreed perfectly with the questionnaire results. This was to be expected from an examination of the sharp drop in weightings shown in Table III.

What are influences FOR and AGAINST choosing teaching?

The questionnaire listed eleven possible influences *for* and *against* the individual choosing teaching as a vocation. The students were instructed to check applicable factors and afterwards to select the *three* most important in rank order. These results were weighted 3 for the first choice, 2 for the second and 1 for the third. The results are presented in Table IV. The order of influences in this table is based upon the *for* weightings of the Junior Elementary group.

TABLE IV

INFLUENCES *FOR* AND *AGAINST* CHOOSING TEACHING

FOR				INFLUENCE	AGAINST			
B.Ed.		Jr. E.			B.Ed.		Jr. E.	
No.	Wtg.	No.	Wtg.		No.	Wtg.	No.	Wtg.
64	116	247	444	Mother	5	8	15	29
57	70	229	339	Father	7	14	12	17
60	83	193	223	A teacher	5	12	19	22
46	54	170	205	A principal	4	3	22	37
34	23	129	128	Several teachers	4	2	20	26
28	35	136	102	Community attitude to teaching	12	30	39	72
33	52	122	102	A friend	21	35	74	126
38	43	139	97	Relatives	9	17	38	53
39	32	101	67	Several friends	28	46	84	126
26	25	57	63	School counselor	5	6	4	4
7	3	24	14	Public reaction to six-week course	38	58	166	252

It is clear from Table IV that students who have already chosen teaching do not admit many influences against their choice. With the exception of the "school counselor" the table may be read from the bottom upwards for the approximate rank order of the "influences against". Since the table was arranged with a balance of opposites, the fact that rank order is substantially maintained by reading *down* for "influences for" and at the same time reading *up* for "influences against" demonstrates a considerable degree of internal consistency.

The "school counselor" differs from the other influences because this kind of service is not at present available on a province-wide basis.

In the validating procedure, the 61 students interviewed retained the top four influences presented in Table IV, but in this order: teacher, mother, father, principal. The interviews further confirmed "public reaction to the six-week course" as the least effective "influence for", followed by "school counselor", "community attitude to teaching", "relatives" and "several friends".

It would appear that while the questionnaire may have slightly distorted the rank order of influences, the results presented in Table IV are generally valid.

What influences a friend against entering teaching?

The questionnaire asked the students to list the influences which they thought had caused friends or acquaintances, who might have made good teachers, to decide against the profession. The tabulation and classification of these influences are presented in Table V.

TABLE V

INFLUENCES AGAINST A FRIEND ENTERING TEACHING

BACHELOR OF EDUCATION (124 Students)		JUNIOR ELEMENTARY (352 Students)	
Reason	Number	Reason	Number
1. Low salary	38	1. Low salary	112
2. Adverse public opinion	25	2. Adverse public opinion	53
3. Discouraged by friends, parents or teachers	28	3. Discouraged by friends, parents or teachers	43
4. Financial	8	4. Financial	39

In Table V the category of *low salary* includes such statements as "poor pay", "not enough money for a man", "better opportunities and wages in other fields". *Adverse public opinion* covers "teaching is a thankless job", "teachers are not appreciated", "the profession is losing prestige", criticism outside of the classroom is increasing", "education is looked down on", "standards are too low", "teachers are objects of ridicule" and similar statements. *Discouraged by friends, parents or teachers* includes the following: "friends talked him into doing something else", "parents disapproved of his taking teaching", "he witnessed the failure of some teacher". The *financial* category indicates ideas like "not enough money to take the course", "he had to work right away to earn money".

Interviews with the 61 students produced validation similar to that following Table II.

How valuable are available sources of information?

The recruitment of teachers depends to a considerable extent upon the possibilities of bringing the career of teaching to the attention of high-school students. The following data indicate the nature and effectiveness of various sources of information about teaching.

TABLE VI

NATURE AND EFFECTIVENESS OF SOURCES OF INFORMATION ABOUT TEACHING

BACHELOR OF ED.						JUNIOR ELEMENTARY				
Not Available	Very Valuable	Helpful	Little Use	Useless		Not Available	Very Valuable	Helpful	Little Use	Useless
7	26	46	22	6	Principal	16	126	140	43	16
4	33	49	11	4	Teachers	9	102	171	38	10
41	19	20	12	5	Counselors	157	45	54	19	23
36	9	28	14	4	Career Nights	135	45	75	27	22
45	9	22	10	3	"A Career in Teaching"	138	57	74	19	9
10	21	48	14	4	"Information for Prospective University Students"	40	112	146	22	6
2	50	47	7	3	Faculty of Ed. Calendar	17	142	168	15	4
23	11	34	19	3	General University Calendar	101	36	106	37	12

Certain of the "sources" in Table VI need clarification. *Career nights* feature job descriptions by successful persons in various fields. "A Career in Teaching" is a pamphlet published by the Alberta Department of Education to inform students about the job specifications of teaching. "Information for Prospective University Students" is published by the University of Alberta's Student Advisory Services.

It may seem peculiar that principals or teachers were not available to inform their students about careers, but this may be explained by the fact that certain students were taught in one-room schools, took courses by correspondence, or had been out of school for some years.

Conclusions and Implications

1. Since approximately one-third of those who choose teaching make the decision before the Grade XII year, it is important that any program of selective recruiting begin prior to this time. It is indicated also that the main emphasis on recruiting should be given during and after the Grade XII year.
2. The choice of a short-term teacher-training program is based upon financial reasons and the immediacy of a career. Students did not choose this training because they thought that it was adequate. It is therefore obvious that appeals to enter short

programs should not be based upon the merit of these as sound preparation for teaching.

3. The most frequent and important reasons for choosing teaching are idealistic ones. Candidates who are well qualified both personally and scholastically should be approached on the basis of service to society and the opportunity to serve the future generation.
4. Parents are the most important influences in causing young people to choose teaching. This implies that information about teaching as a career must get into the homes. Parents must be informed. As a corollary, adverse public opinion, since it affects parents, will tend to reduce the number of teacher candidates.
5. The effect of teachers upon the decisions of students to enter the profession is strong. Classroom clmate has much to do with a student's views about teaching. The example of a good teacher is often the determining factor in the choice of teaching as a career. The active cooperation and support of the teacher's professional organization should promote selective recruitment.
6. The chief influence against choosing teaching as a career is adverse public opinion. Young people who have chosen teaching feel keenly the criticism and lack of esteem from which education currently suffers. It is therefore essential that critics of education use good judgment in attempting to point out its faults lest in so doing they worsen the conditions which they deplore by driving capable prospective candidates away from teaching.
7. In discussing a friend who might have entered teaching and did not, low salary is given as the most frequent reason. It appears that any long-range solution of the teacher shortage is dependent upon increased salaries. Teachers' salaries must be made comparable with returns from competing opportunities which are available to capable young people.
8. Financial difficulties are given as the most frequent reason for choosing short-term teacher-training programs. A substantial number of young people name a bursary as a reason for choosing teaching. It is clear that the measures taken by the Alberta Government in the remission of fees and the provision of bursaries have contributed materially to the alleviation of the teacher shortage in the province.
9. Prospective teachers cited principals, teachers and the Faculty of Education Calendar as the most useful sources of information about teacher training and opportunities. This suggests that, heretofore, other sources of information such as teaching pamphlets, career nights and the like have not have had suffi-

cient effect, partly because the whole of the province's high school population has not been reached adequately. Not all students are able to obtain easily the required information about a career in teaching. Efforts to inform students about teaching must not only be continued but increased to provide province-wide coverage.

BIBLIOGRAPHY

Aikenhead, J. D. *To Teach or Not to Teach.* Ed.D. Dissertation, University of Oregon, 1954.

Clarke, S. C. T. "Why Young People Go In for Teaching." *The A.T.A. Magazine* 32:10 (June, 1952), pp. 10-12.

McNemara, Q. "Opinion-Attitude Methodology." *Psychological Bulletin* 43:4 (July, 1946), pp. 289-374.

Melsness, H. C. "More Information, Please." *The Alberta School Trustee* XXIII:6 (May, 1953), pp. 8-9.

THE READING ABILITIES OF ADULTS

DOROTHY LAMPARD
Faculty of Education, University of Alberta

While there has been fairly continuous investigation of reading efficiency in the Alberta public schools, little or no detailed information has been gathered on the reading of adults. The kind of reading adults do must result, in part, from previous training. Studies in this field should therefore yield some information, at least, about the effectiveness of the teaching of reading. Further, the success of certain remedial methods with adults might suggest possible procedures for the use of high schools and universities with those students who, because of ineffective reading habits, are unable to achieve at a maximum level of competency.

Courses in effective study habits were first started by the author in 1946, for graduate and student nurses in Manitoba. The Extension Department of the University of Alberta provided an opportunity to continue this work. Training in silent reading skills has been given to more than 200 adults during the past two years in Calgary and Edmonton. The data on one of these groups, sufficiency complete for statistical analysis, provide the basis for the present study.

The purpose of the study was to determine:

1. Reasons for taking a course in reading
2. Reading ability
3. Effects of short-term remedial training

Participants

Sixty-four adults registered for the course. Meetings one and a half hours in length were held once a week for ten weeks. The average attendance of 56 was unusually high for a voluntary, non-credit night course, especially with people who had already put in a day's work and who in most cases had many home and community ties. Absences were usually due to business trips, illness, or previous obligations.

With the exception of one 18-year-old student, the age of the group ranged from 30 to 60 years. Twenty-eight per cent were women. The majority of the class were employed in business as owners, managers, chartered accountants, secretaries and stenographers, or in oil companies as engineers, seismologists, geologists, landsmen and oil scouts. Eight per cent were nursing instructors. Five per cent were R.C.A.F. and T.C.A. personnel. The remainder included two housewives, one doctor, a lawyer and a telephone man.

Almost half of the group were university graduates: ten per cent had two degrees, and 36 per cent had one degree. Twenty per cent were Bachelors of Science. Of the others, 25 per cent had senior and eight per cent junior matriculation.

Reasons for Taking the Course

The most frequently expressed reason for needing help in reading was slow rate and poor comprehension. Business men found it difficult to cover any great amount of material, while engineers found that the slow reading required for detailed reports and graphs had become a habit. Some had trouble in retaining the detail of what they did read. Eighteen per cent felt that more efficient reading skills would lead to promotions and general self-development. Others wanted help in reading reports and research, in critical analysis, and in reviewing books. Still others attended the course to find how it was organized, to asses its value in student training, or to help their own children.

None of those who attended the classes could be considered incompetent at the adult level, or seriously deficient in the basic skills of reading. But their skills were inflexible. They tended to read all material at the same rate—whether reports, fiction, or other. They had little idea that to read comprehensively means to read for purpose, organization of ideas, and critical analysis.

Materials

Because daily work exercises are considered essential for reading improvement, *How to Become a Better Reader* (Paul Witty) and *The Atlantic Monthly* (education edition) were assigned as homework. From time to time the rate, comprehension and vocabulary graphs for the exercises in *How to Read Better and Faster* were discussed with individuals before or after sessions.

To encourage idea rather than word reading, members were asked to read at least three mystery stories, westerns, or light fiction within a time limit. Lists of reference books on the art of reading, vocabulary development, and semantics were made available through the University Extension Library.

During the course mimeographed materials on current topics were used for discussion and critical analysis. Every effort was made to suggest books and magazines which would lead to socially useful information on such subjects as politics, important literature, controversial issues, music, and humor, or lead to more thoughtful reading in varied fields. A Harvard film[1] and transfer sheet fol-

[1]Harvard Reading Films, obtained from the Audio-Visual Aids Branch of the Department of Education, Edmonton.

lowed by comprehension checks were used to speed the rate by exposing segments of a line at increasingly brief intervals.

A Keystone tachistoscope[2] was used to improve the rate of visual perception. This instrument flashes forms and digits at short intervals. It is most effective for demonstrating that the ability to see and remember an increasing number of symbols at a glance improves with training, and therefore gives more understanding of the possibilities of training in other areas of reading. As word, phrase and sentence slides were not available, tachistoscopic training was done with digits.

The objective tests—Nelson-Denny Reading Test (two forms) and Michigan Speed of Reading (two forms)—were similar to those of a New York study[3] of adult reading. They could be administered in a single class period, and were easy to mark. As rate and comprehension tests seldom appear to measure the same thing,[4] it seemed practical to spend as little time as possible on the objective tests, and to use them primarily for motivation and as a measure of progress.

The Michigan Vocabulary Profile Test was used to discover weaknesses and strengths in the specialized vocabulary areas.

Research has shown that auditory memory span more than auditory discrimination may be a significant factor in the development of word recognition[5] and that visual memory span, with training, usually results in measurable improvement in reading speed. Because of this, a measure of auditory and visual memory span was made—auditory by dictating increasing numbers of digits, and visual by flashing increasing numbers of digits at one-hundredth of a second.

Remedial Procedure

For many reasons peculiar to voluntary night classes a course of this kind requires different procedures from those regularly used. To prevent loss of time, interest must be caught and definite goals and work patterns established immediately. In large classes, abilities and interests differ broadly. Where there has been only a general diagnosis, the instructor must keep a continual watch for signs of strain and special difficulties. The effectiveness of this short-term training depends on changing attitudes towards the reading task itself. and in consistent practice in the class period and at home.

[2]Loaned by the Alberta Society of Optometrists.

[3]Carol S. Bellows and Carl H. Rush, Jr., "Reading Abilities of Business Executives," **Journal of Applied Psychology** XXXVI:I, p. 2.

[4]Lawrence W. Carrillo and William D. Sheldon, "The Flexibility of Reading Rate," **Journal of Educational Psychology** XLIII, pp. 299-305.

[5]Dorothy L. Poling, "Auditory Deficiencies of Poor Readers," **Clinical Studies in Reading II**, p. 11.

For similar reasons the remedial work has to be general. The course objectives were to increase reading efficiency by means of high motivation and methods which would modify the reading habits usually established in the word-learning stages of the primary grades.[6]

Each period was planned to include visual training, work with a Harvard Film and Transfer sheet, and discussion of such topics as vocabulary, memory, or critical thinking. The first and ninth meetings were used for testing, the tenth for interpretation.

Results and Interpretations

TABLE I

COMPARISON OF READING PERFORMANCES (RAW SCORES) OF FIRST AND NINTH CLASS MEETING

TEST	Before Training (1st Meeting)			After Training (9th Meeting)		Correlation (1st & 9th)	
	N	Mean	S.D.	Mean	S.D.	r	Critical Ratio
Michigan Speed of Reading Test (Forms 1 and 2)	45	53.0	10.2	59.5	10.1	.82	3.72†
Nelson-Denny Vocabulary Test (Forms A and B)	44	61.0	18.2	62.9	18.3	.91	1.60
Nelson-Denny Paragraph Reading Test (Forms A and B)	44	46.6	14.8	48.2	14.5	.83	1.2
Nelson-Denny Total (Forms A and B)	44	107.9	30.4	112.0	30.4	.91	2.07*
Harvard Film Transfer Reading rate (words per minute)	43	180.4	40.1	370.1	107.5	.51	13.3†
Harvard Film Transfer Comprehension	43	50.2	17.7	34.3	19.0	.28	4.68†
Auditory Digit Span of Recognition	41	7.0	1.5	7.4	1.2	.58	.47
Visual Digit Span of Recognition (tachistocopic training)	41	3.9	1.1	4.8	1.1	.28	.20

*Significant at the 5% level.
†Significant at the 1% level.

Table I shows a comparison between the before and after scores on the tests used for reading measurement. The Michigan Speed of Reading Test and the Harvard Film Transfer for reading rate and comprehension showed significant changes at the one per cent level of confidence. The total Nelson-Denny Test score was significant at the five per cent level. The result was comparable to that of

[6]Christian O. Weber, "Reading Inadequacy As A Habit," **Journal of Educational Psychology** XL, pp. 427-433.

the New York Study[7] in the general pattern but not in the amount of improvement.

G. T. Buswell's statement that comprehension and vocabulary changes are difficult to achieve with adults[8] is true for this study. In the standardized Nelson-Denny Total Score, a general comprehension test, there was a significant gain (probably resulting from the very significant increase of rate) at the five per cent level of confidence. The daily work graphs showed a steadily rising rate line with a fairly high comprehension line. Comprehension, however, never increased as much as rate, and the Nelson-Denny Vocabulary Test scores showed no significant change. Other teaching methods might have produced better results.

The great increase in the standard deviation on the Harvard Film Transfer Reading Rate may be attributed to the physical and emotional after-effects of the mechanically controlled phrasing and pacing of the reading film shown before the Transfer Sheet, and to the visual fatigue produced in older participants by the sharp dark-to-light changes. The great increase in rate with a consequent loss in comprehension on the transfer sheet may also have been due to this reaction from the film. On the other hand, it could have been that those who found the films disturbing needed more help in word recognition and meaning before they were ready for intensive training in speed. The steady pressure of the film pacing appeared to have broken the habit of word reading, at least; and it could be expected that continued practice would raise the general level of comprehension. This expectation might be justified by the Nelson-Denny Total score (showing more than a chance gain), and by the consistently high level of comprehension in the homework graphs.

Auditory digit span was checked at the time of the first and the ninth tests. No remedial work was given because a digit span of seven is better than the average of between five and six digits established by the American Telephone and Telegraph Company, who use that span to set the length of telephone call numbers. Visual memory span increased from 3.9 to 4.5 digits, or 23 per cent. This is comparable to the results of a Bradley University study,[9] which showed a 29 per cent gain six weeks after training was completed. No doubt better lighting and a smaller group, as well as a better knowledge of the individual's visual difficulties from a complete visual examination, might have resulted in greater gains.

---

[7]Bellows and Rush, **op. cit.**, p. 2.

[8]G. T. Buswell, "Remedial Reading at the Adult Level," **News, National Association for Remedial Teaching** II:2, p. 4.

[9]J. A. Potter and others, "Adult Reading Skill Program," **The Optometric Weekly** XLIV:5, p. 169.

TABLE II

PERCENTILE EQUIVALENTS FOR MEAN SCORES ON READING BEFORE AND AFTER TRAINING*

TEST	PERCENTILE BEFORE	PERCENTILE AFTER
Michigan Speed of Reading	30	60
Nelson-Denny Vocabulary	75	77
Nelson-Denny Paragraph Reading	55	60
Nelson-Denny Total	68	75

*Compared with college seniors.

For easy interpretation of test results, the class means (raw scores) were converted into percentile equivalents as shown in Table II. In the absence of any adult norms, college senior norms were used for comparison.

Table III shows the specialized vocabulary pattern to be in the lower percentile range according to test norms. That the vocabulary for physical sciences was high and for commerce low might be attributed to the backgrounds of the participants: 20 per cent of the degree group had science degrees, while of those in commerce or business only eight per cent had actual business training. Another possibility is that the vocabulary of the physical sciences is in more general use or that it receives better teaching in the schools, while commercial terms are seldom used in or out of schools except in a few business magazines and papers.

TABLE III

MEAN SCORES AND PERCENTILE EQUIVALENTS OF THE MICHIGAN PROFILE VOCABULARY TEST*

N = 49	MEAN (Raw Scores)	PERCENTILE
1. Human Relations	19	23
2. Commerce	17.6	7
3. Government	18.9	23
4. Physical Sciences	16.1	69
5. Biological Sciences	19	24
6. Mathematics	19	24
7. Fine Arts	15.8	23
8. Sports	20.1	31
TOTAL SCORE	145.5	27

*Compared with college seniors.

Summary and Conclusions

Courses in reading improvement have been conducted for groups of adults under the Extension Department of the University of Alberta. From the analysis of the present group it can be concluded that:

1. Adults have problems in speed and flexibility of reading, in vocabulary, in critical analysis, and in reading purpose.
2. The teaching methods described above were effective in developing rate and comprehension, but less effective in developing vocabulary.
3. Training in visual perception provides effective motivation for developing rate and comprehension.
4. The Harvard films appear to cause enough physical and emotional strain with large groups of adults to influence comprehension.
5. Homogenous grouping should make it possible to use better materials, give special attention to those who need help in the mechanics of reading, open more discussion on literature and politics for those with adequate backgrounds, and give university students more specific help in developing effective study habits.
6. Interested adults received enough information and direction to use the course techniques for two training classes of student nurses, and to interest three business offices in vocabulary development for their employees.

Collected comments on the course as a whole were sufficiently encouraging to warrant a continuance of the program. It would appear to have helped those who did read and comprehend well to develop more flexible reading habits and broaden their reading. There was some suggestion that training in phonetic and structural analysis before working on meaning would have been profitable to at least a third of the group. In some cases the adults claimed that although their reading speed had not increased they were able, by applying other suggested techniques, to improve the efficiency of reading necessary for their work.

Implications

For the Schools

The teaching of reading above the primary grades should place more emphasis on developing a flexible rate of reading for different purposes, and on vocabulary development in all areas but that of the physical sciences.

For the University

A short-term course on effective study habits for students could have some effect on university achievement, and be used to follow up the diagnosis of student counselling services. In such a course, stress should be placed on vocabulary, organization, and critical analysis.

For Further Research

1. Development of more effective techniques for improving word recognition and vocabulary at high school and adult levels.
2. A comparative study of the effectiveness of direct and indirect methods of vocabulary teaching.
3. A study of the nature and extent of the relationship between auditory and visual memory span and reading achievement.
4. A careful analysis of science courses to identify the additional requirements which would insure training in the reading skills needed for professional success.

BIBLIOGRAPHY

Bellows, Carol S., and Rush, Carl H. Jr. "Reading Abilities of Business Executives." *Journal of Applied Psychology* XXXVI:1 (February, 1953), pp. 1-4.

Buswell, G. T. "Remedial Reading at the Adult Level," *News, National Association for Remedial Teaching* II:2 (March, 1952), pp. 1-4.

Carrillo, Lawrence W., and Sheldon, William D. "The Flexibility of Reading Rate." *Journal of Educational Psychology* XLIII:5 (May, 1952), pp. 299-305.

Harvard Reading Film, Harvard University Press, Cambridge, 1948.

Poling, Dorothy L. "Auditory Deficiencies of Poor Readers." *Clinical Studies in Reading II*, Supplementary Educational Monographs No. 77. University of Chicago Press, 1953.

Potter, J. A., and others. "Adult Reading Skill Program." *Optometric Weekly* XLIV:5 (January, 1953).

Weber, Christian O. "Reading Inadequacy as Habit." *Journal of Educational Psychology* XL:7 (November, 1949), pp. 427-433.

Books

Good, Carter V., and Scates, Douglas E. *Methods of Research.* New York, Appleton-Century-Crofts, 1954. 920 pp.

This volume is designed to meet the needs of graduate research workers in education, sociology and psychology. Since it is the most comprehensive treatment of the general or non-statistical approach to research in the social sciences to appear in the last decade, its welcome seems assured.

Three introductory chapters deal successively with the place of research in modern society, the formulation and development of the research problem, and the survey of related literature. The inclusion of examples and illustrations drawn from the authors' wide experience in research adds materially to the effectiveness of the treatment.

The next ten chapters are devoted to an exposition of research methodology. Readers will be grateful to the authors for their simple and logical classification of procedures. The historical method, including the philosophic and bibliographic methods of former classifications, receives effective treatment in one chapter. Six chapters are devoted to the descriptive method, dealing mainly with problems of classification and analysis and the procedures utilized in surveys and normative research. This section seems unnecessarily long.

A further chapter deals briefly with the experimental method, without reference to the complexities of statistical design. At first glance the brevity of treatment suggests a danger of leading the inexperienced student to underestimate the importance of this vital aspect of the research worker's training. In this day of increasing emphasis upon broad statistical training there is little likelihood of this happening. In addition, the succession of excellent books on research design and statistical inference, which have been published since 1945, render further treatment at this time quite unnecessary.

The case-study and clinical methods receive adequate treatment. Again, the authors are to be commended for their restraint in dealing with clinical procedures. As in the case of the experimental method, more detailed treatment is rendered unnecessary by the existence of thorough, comprehensive and modern references on this subject. A discussion of the genetic, developmental and growth study procedures concludes the exposition of methodology in research.

The book concludes with a detailed and valuable treatment of the skills and procedures involved in the gathering and organization

of research data, and the writing of the research report. Students engaged in preparation of a dissertation will find ready use for this information.

This volume would seem to have four claims to favorable consideration. First, its classification of research methodology into five logical categories seems to provide an escape from a situation which has threatened to become a taxonomic headache. Second, the wealth of examples and illustrations drawn from research problems in the physical and social sciences brings theory down to practice in commendable fashion. Third, the chapters on the survey of related literature and on the reporting of research are invaluable aids to the beginner. Fourth, the extensive chapter bibliographies will prove of great utility to the student of research.

The volume have one major weakness. It is too long. For example, the authors require six chapters, four hundred and thirty-three pages, to deal with the descriptive method. This lengthy treatment is not attributable to the reproduction of extensive figures or tables, the inclusion of typical studies, or even of extensive bibliographies. All of these are present and are of definite value. Rather it is a fondness for theoretical exposition which lengthens and somewhat lessens the value of this otherwise excellent book.

G.M.D.