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THE UNIVERSITY OF ALBERTA

SOME CHARACTERISTICS OF SLOW LEARNERS
IN A SPECIAL SCHOOL

BY



MURRAY JAMPOLSKY

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH
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UNIVERSITY OF ALBERTA
FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled "Some Characteristics of Slow Learners In a Special School," submitted by Murray Jampolsky in partial fulfilment of the requirements for the degree of Doctor of Philosophy.

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ABSTRACT

Much comment and considerable theorizing has taken place about those students who appear to be unable to achieve any degree of success in the regular classroom for whatever reason. The present investigation had two primary purposes: (1) To determine some characteristics of "slow learners"; and (2) To test some predictions concerning the students' achievement in W. P. Wagner High School.

The subjects for this study comprised seventy-eight boys and sixty-five girls selected from each of Years One, Two, and Three. All subjects were administered a battery of tests at two points in time, followed by an individual interview.

Strong support was found for the prediction that the Wagner students would score higher on the WISC and WAIS than the limits established for a slow learner (I.Q. 75-90). It was also evident that the boys and girls represent two distinct populations in this dimension. Support was found for the prediction that there would be a significant difference in socio-economic status between the population under study and their counterparts in an academic program.

Lipsitt's Self-Concept Scale and Coopersmith's Self-Esteem Inventory indicated little support for the prediction that significant improvement would take place in self-concept. Performance on Eysenck's Junior Personality Inventory did give support to the prediction that on the dimension of extraversion-introversion and neuroticism there were differences between the population under study and other school populations.

In the area of basic skills, significant gains over time were recorded in achievement in English and mathematics. No corresponding gain in science was observed.

Sex differences were discovered within the school in self-esteem, science, mathematics, I.Q., neuroticism, extraversion, mathematics, and vocabulary.

Considerable support was found for the prediction concerning the students' attitudes towards their current teachers. The teachers in Wagner were held in high regard, while few favorable comments were made towards former teachers.

As predicted, the vocational program was considered primary by all subjects while the academic offerings were not viewed favorably. The students appear to define themselves dominantly in vocational terms, making improved showings in activities related to vocational curricula.

The school and offerings received positive reinforcement with most students indicating satisfaction with the opportunity for pursuing vocational interests which are of immediate concern to them.

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CHAPTER I

INTRODUCTION

I. GENERAL

During the last three decades of the nineteenth century, compulsory elementary education was introduced in liberal-capitalist democracies, partly because the governing authorities were compelled to extend the political franchise to nearly all males over twenty-one and partly because technological developments required a level of human skills, intellectual, physical, motor, and combinations of these, which could not be achieved by the older informal schooling in simple manual practice. The result of this new popular form of education was a duplication in schools of what had been happening in society for the last century, i.e., a pile-up of children in the lower grades of schools (the counterpart of the slums) who had neither the innate endowment nor the motivation, nor, possibly, both to make significant progress in the conventional school where the curriculum was of a conventional academic type, resembling that in its private, fee-paying counterpart. The difficulties that ensued from legislation ensuring that no child shall leave school until he has secured at least the minimal essentials of an education was well stated by Goodenough (1949, pp. 15 - 16):

In the first decade of the twentieth century, there was little concept of adjusting the curriculum to the needs and abilities of the individual child. Grade requirements were rigid and formalized. Promotion depended upon a child's mastery of the subject matter prescribed for his grade. Teachers were expected to know the subjects which they taught and to be able to enforce order in the classroom. That they should also know something

about children was a novel idea just beginning to affect the thinking of a small number of the more advanced educators. The backward child, the slow-learning child, was known to every teacher at firsthand, but few had any idea of dealing with him beyond non-promotion and punishment if he failed to conform to classroom rules. Thus, it came about that the primary grades in many cities, especially those having many children of foreign-born parents, became clogged with children whose ages ranged all the way from six to sixteen years. Rarely were any special arrangements available for the older children.

While the educational authorities of the day saw this problem in academic terms--could the child learn the curriculum or was the child unable to do so because of mental retardation, a state which French psychiatrists had studied for many decades (Goodenough, 1949)--there were a new breed of thinkers in the wings, notably John Dewey and Stanley Hall, who saw the school, not as a place where conventional learning took place, but as a place for transforming society by transforming people. In other words, they saw the school as a place for inducing conceptual change which would be the precondition for two desirable forms of social change so necessary in the United States in the late nineteenth century: (a) the assimilation of immigrants into the "American way of life" and (b) the controlling of the oscillations of booms and depressions that characterized that country in the last two decades of the century. The last point, most relevant to this study, was stated by Hofstadter (1966, pp. 362 - 363):

Dewey was also trying to find the educational correlates of a democratic and progressive society. How can one construct an educational system that will avoid perpetuating all the flaws of existing society at the root simply by molding children in its own image? If a democratic society is truly to serve all its members, it must devise schools in which at the germinal point in childhood, these members will be able to cultivate their capacities and, instead of simply reproducing the qualities of the larger society, will learn how to improve them. It was in this sense that he saw education as a major force in social reconstruction.

The paradox is that while Dewey failed in his goal, as an educator, philosopher, and politician--this point has been documented by Lawson (1971)--nevertheless he was wildly successful in his advocacy of the school as a means of social reform. As is well known, corporate capitalism in a liberal democratic society has a system of insane priorities which has been well described by Galbraith (1970, p. 47):

The system is gravely deficient in two other respects. Its performance is highly uneven. In about half the economy--that half characterized by the large corporations or where needs of the large corporations are being served--production is efficient, men are well paid, for those who belong there is no poverty. In consequence, over supply of automobiles, gasoline, highways, household appliances, detergents, gargles, space vehicles and weaponry is excellent. Outside of the world of the large corporation the performance is far less reliable--or satisfactory. This is especially true of that part of the economy which makes urban life agreeable or even tolerable. Housing, surface transportation, hospital and health services, street cleaning, police services and the courts, other municipal services and education are provided with increasing relative and often with increasing absolute inefficiency. And poor productive performance in this part of the economy is matched by poor employment conditions. Jobs are poorly paid and vulnerable (as in the case of public employers) to inflation. In further consequence of this and other factors, income inequality is increasing. Thus, although national income and gross product continue to rise, they disguise an increasingly disparate performance within the economy. And it is from the disparity that the urban dweller and especially the urban ghetto dweller, suffers. He has to live with the fact of the poor performance and the poor wages it pays.

The Canadian correlates of this state of affairs is given by Taylor (1970, p. 35):

Thus, for 1969--a year in which essential public expenditure was cut to the base; in which provincial governments were unable to meet growing needs for education; in which Canada's housing crisis deepened for moderate income families--Ford and Chrysler announced retooling programs costing respectively \$100 million and \$75 million. No one would seriously claim that we need a new model of a Meteor or Plymouth more than we need schools or houses. Yet it is never proposed in orthodox circles that the

automobile companies' plans might be put off to another year in order to allow high-priority public investment to go through without over-heating the economy. Why?

In this year, however, the Ontario government issued a report, *Living and Learning*, in which the blame for all the ills of corporate capitalism--its slums, racial discrimination, inability to solve the inflation problem which, paradoxically, its success ensures, its depredation of the individual as a human being--were laid at the feet of teachers. In other words, Dewey had found the needed scapegoat and his institutional home. No capitalist worthy of the name would ever allow such a victim to escape perennial whipping.

Why do educators allow themselves to be pushed into this status of a whipping boy? The best guess is that Dewey had a student called Carl Rogers, who translated Dewey's political-philosophical terminology into psychological terms. "Growth", an absurd metaphor (Hofstadter, 1966, p. 372), became "self-actualization", a concept of the motherhood, football type, and the school was the hot-house where this process would be given its start. In his book entitled *Freedom to Learn*, Rogers (1969, p. 295) states:

Here then is my theoretical model of the person who emerges from therapy or from the best of education, the individual who has experienced optimal psychological growth--a person functioning freely in all the fullness of his organismic potentialities, a person who is dependable in being realistic, self-enhancing, socialized, and appropriate in his behavior; a creative person, whose specific formings of behavior are not easily predictable; a person who is ever-changing, ever-developing, always discovering himself and the newness in himself in each succeeding moment of time.

2. SPECIFIC

No one is going to be surprised in the least that the contemporary romantic school of "radical" educational critics (in Gross and Gross, 1969) should place on teachers the impossible burden of producing a new generation, creative, spontaneous, with all their "potential" developed; if only because these critics rarely go near a school. More astonishing has been the recent conversion of school administrators, particularly in the United States (Divoky, 1969, pp. 330 - 350) to this conception of the teachers' function. The suggestion was made by a local administrator (Wagner, 1969) that "slow-learning" children should have as good a chance as their faster-learning counterparts to be creative, imaginative, and so forth.

On January 30, 1964, W. P. Wagner, then Superintendent of Schools, presented to the Education Committee of the Edmonton Public School Board a report on *Secondary School Programs and Accommodation Needs with Particular Reference to Vocational and Occupational Needs* (Wagner, 1964). In the main the report dealt with the needs of the slow learner.

Wagner indicated that this is a large group encompassing two-fifths or one-third of all the pupils entering the secondary schools. "For these a new approach must be taken. To revise existing academic programs, to water down existing courses, is not good enough. A complete change in our thinking is needed."

In dealing with the responsibility of schools Mr. Wagner stressed the principle of universal education at the secondary school level. The implications indicated were that conventional program offerings cannot meet all student needs or demands, and in acting in

the interests of all pupils we must recognize that all are not intellectually equal. It was felt that the range of capacities was growing and that we could no longer "force" students into programs for which they are not able.

Wagner saw each type of school trying to develop knowledge and skills. With the *rapid learner* no difficulty is expected, but with the *slow learner* who acquires skills with difficulty there is a lesser amount of knowledge grasped in the same time span. The suggestion was made that to expect all students to cope with the same curriculum and standards of achievement was unfair. As well as developing skills in reading and writing, the slow learner has to develop his imagination, his capacities for "thought, judgment, enjoyment, and curiosity."

In euphemistic terms and without attempting any definitions, it might be said that the school was designed to release whatever "latent potential" the students had by a program of individualized instruction. The focus of the program was to be on the development of individuals rather than on courses. Occupation orientation, training in general vocational skills, and continuing education were to be parts of this developmental process as well as such academic and social values as clear thinking, creative expression, effective work and study habits, good mental and physical health, social graces, worthwhile use of leisure time, and ethical conduct.

Now, no student of the Wagner school can afford to take seriously Wagner's own rationale for its existence. What can be done is a study of the characteristics of its students and of the influence of the school on them.

CHAPTER 2

AN ORIENTATION AND SURVEY OF THE LITERATURE

This survey has two purposes: (a) the gathering of hitherto uncollected data about subjects in this "separate" vocational school for slow learners--a justifiable "fishing expedition" with test nets based on hunches and practical requirements; (b) the testing of theoretically based hypotheses about some characteristics about the school, the students and the effectiveness of the programs.

I. REVIEW OF THE LITERATURE

Definition Problems

Various terms have been used to describe those whose learning capacities appear to be impeded. Students with apparently similar or related problems are often referred to as "mentally handicapped", "feble-minded", "culturally deprived", "disadvantaged", "mentally atypical", "backward", "subnormal", et cetera. In homogeneous rooms they are the special or opportunity class and in heterogeneous rooms they may belong to the "Blue Jays" or "Squirrels".

The literature would indicate that a slow learner is an individual who either because of poor maturation or achievement or intelligence or combinations of these three, is considered by appropriate authorities to be incapable of significant achievement in the matriculation high school program.

Younie (1969) has pointed out that the term cannot be used to generalize a list of standard characteristics, as in some instances entire schools are designated as being "slow students" irrespective

of the relative intellectual achievement potential of individual students. Featherstone (1951) sees the difficulty of the slow learner in his ability to abstract and symbolize. Johnson (1950) uses the model of mental retardation indicating that the slow learners compose the largest group of mentally retarded persons. An inclusive approach by Balzau and Keltz (1956) and Orr (1955) suggest the definition of a slow learner as any pupil slightly below average for whom the multiple curriculum offered in the high school is not suitable. Dunn (1959), Smith (1951), and Karnes (1970) indicate that only in one respect are all slow learners alike and that is in their consistently slow rate of academic learning. For Abramowitz (1970) the slow learner is anyone markedly deficient in areas of reading comprehension, oral and written expression, computation, and personal motivation.

For purposes of identification, Garrison and Force (1965), Witty (1961), Johnson (1964), and others have categorized slow learners as falling within the I.Q. range of 75 to 90 on individual tests.

Socio-Economic Status

While there are many variables functionally related to learning disabilities, many authors have focused their attack on socio-economic status. Various phrases have been used to describe the term "lower socio-economic" and, in order to overcome the definition problem, Riessman (1962) uses the terms "culturally deprived", "underprivileged", "disadvantaged", "lower class", and "lower socio-economic" interchangeably.

According to such researchers as Bowman and Matthews (1960), Allen (1956), Sheldon (1958), and others, approximately 85 per cent

of school dropouts come from families of low socio-economic status. A study from the state of New York (1962) revealed that one-third of the drop-outs came from families with a history of public or private assistance.

The extent to which children of the lower class fail to perform in school as well as those of the middle or upper classes is shown in the studies of Porter (1961) and Hall and McFarlane (1963). From their findings it would appear that a lower class child is only half as likely to remain in school (at least until the end of high school) as is the upper or middle class child. This is felt to be the result of the cultural deprivation a child experiences as a member of the lower class. He is handicapped in school because he lacks a home environment which includes books, intellectual discussions, and parents who value education.

Labercane and Armstrong (1969), in an Edmonton study, concluded that lower socio-economic students operate at a lower level of conceptualization than upper socio-economic students. They discovered a tendency for the lower socio-economic students to regress in terms of conceptualizing ability, a finding which points to the necessity for some kind of intervention by educators to overcome the "cumulative deficit phenomenon" hypothesized by Deutsch (1965). Social class factors such as home environment, and education and income of the parents appear to play the dominant roles in the development of language for the young child. The work of Deutsch (1965), Bernstein (1965), Hess and Shipman (1965), and others has pointed out the role that social class plays in impeding or promoting the development of

intelligence, vocabulary, and reading. Johnson (1970) concluded that the backgrounds of culturally disadvantaged students prevented them from achieving success with respect to a middle-class curriculum. The culturally disadvantaged student lacks the experiences, the concepts, the language system, the learning style, the interests, and the general information the curriculum expects and extends. Thus, their non-achievement is the result of debilitating cultural factors and they are at a disadvantage when they come into contact with a curriculum devised by and for the dominant culture.

2. PERSONALITY OF THE SLOW LEARNER

While it is widely believed that slow learners as a group have poor personalities and are less well adjusted than average or bright pupils, there is no evidence, according to Johnson (1964) and Featherstone (1951) from research and reported studies that the slow learners as a group have any specific emotional and behavioral characteristics. Johnson (1964) suggests that slow learners have the same basic wants, needs, and desires as all children, and like all persons, they have need for feeling that they belong, that they are intrinsically of value, and that they are accepted and a part of a group.

Karnes (1970) suggests that socially and emotionally slow learners tend to be less mature than their brighter peers with 50 per cent having poor emotional adjustment, and many being discipline problems. Wrenn, Ferguson, and Kennedy (1936) found support for their thesis that slow learners manifest feelings of inferiority that are compensated for by assuming greater social aggressiveness. Barbe (1964), Witty (1961), Havighurst (1958), Dunn (1959), and others

believe that slow learners become frustrated when they begin to feel apart from the total group in their inability to perform the same kinds of tasks as the rest of the children. They react to their frustrations, many become aggressive and because of this aggressiveness, they become discipline problems.

Johnson (1964) accounts for the aggressiveness that leads to discipline problems by indicating that little or no attempt is made to provide a curriculum designed in reference to their peculiar needs and characteristics, or to adapt the methods of instruction in relation to their intellectual abilities to learn.

Witty (1961) and Abraham (1961) suggested that slow learners experiencing a succession of failures develop compensatory mechanisms. While some students may exhibit aggression because of their feelings of insecurity and inferiority, others will exhibit withdrawal, indifference, nervousness, anxiety, attention-getting, or non-conformity. Featherstone (1951) attributes these characteristics to the slow learners' inability to cope with subject matter which to them is meaningless and purposeless.

Harrison and Scriven (1969) labelled the slow learner as often apathetic, diffident and moody. In an extensive piece of research Lightfoot (1951) found significant differences in favor of slow learners in seclusion, placidity, and dependence. Significant differences in favor of the bright group were found in achievement, affiliation, autonomy, creativity, and dominance.

In reviewing the literature on the slow learner, Harrison and Scriven (1969) found a recurring theme of the self-esteem of the slow learner being eroded by years of repeated failure, frustration, and

rejection. The negative effects of continuous failure and frustrated learning experiences have received much attention and no elaboration is needed.

In summarizing the characteristics of slow learners, Johnson (1963, pp. 56 - 57) states:

Evidence strongly indicates that where programs have been instituted, designed specifically to meet the needs of slow learners, most anti-social behavior is either materially reduced in intensity or vanishes altogether. Truant and delinquent behavior and attitudes of disinterest and dislike for school and learning activities are not inherent in the slow learners, although they are often considered to be of an intrinsic nature. They are, instead, a reflection of their reactions toward continuous frustration, failure, and subjection to meaningless activities--a perfectly normal reaction.

3. SPECIAL PROGRAMS AND "SEPARATE" SCHOOLS FOR SLOW LEARNERS

While the literature contains some information on separating the mentally retarded from the regular classroom, little evidence exists as to the efficacy of separating the slow learners from a heterogeneous setting. Some information is available on work-experience programs established for slow learners and dropout prone students.

Studies dealing with the desirability of separating the mentally retarded from the regular school or classroom were conducted by Bennett (1932), Pertsch (1936), Blott (1958), Liddle (1959), Osterling (1960), West (1961), Meyerowitz (1962), and others with similar evidence which indicated lack of concrete evidence that would substantiate the value of separate education.

Wagner High School does not purport to be a school for the retarded, but rather is a school that provides a curriculum, program,

and services which are designed to rehabilitate slow learners who are school dropout and unemployment prone.

Some effort has been expended in trying to meet the needs of this type of student. Bowman and Matthews (1960), as a result of their study on motivation of youth for leaving school, recommended that schools give serious consideration to grouping children with like abilities for instructional purposes and consider providing remedial teaching for those who need such special help. Their recommendations for curricular adjustments include preparation of youth, especially boys, for vocational success by providing counselling and closely supervised work-experience programs. For girls, they recommended preparation for marriage and family living.

Stebbins (1963) reports a personalized curriculum for potential dropouts in Flint, Michigan. The objectives of the Basic Curriculum were to include personal development, vocational orientation, basic citizenship skills, and basic academic skills. Burchill (1963) reviewed two additional Flint, Michigan programs--a rehabilitation program initiated in 1960 conducted in the Junior High Schools and a voluntary work-experience project for high school dropouts initiated in 1961. At the junior high level, an after school rehabilitation program was undertaken. After school the participants would report to two core area classes: reading-English, social studies-mathematics, science-health. These students reported in the afternoon for school and were enrolled in regular non-academic classes. The objective of this program was to foster changed attitudes in the pupils so that they would eventually be able to resume full attendance in the regular program.

The program at the senior high level was for school dropouts and involved school-job adjustment training. Classes were conducted on an informal basis with the courses emphasizing knowledge and skills needed for subsequent employment. Academic training was continued in either senior high schools or night schools. Both programs indicated a certain degree of success.

Burchill (1962) cites a work-study program in Santa Barbara, California, where six high schools co-operate to provide their youth with the opportunity to explore the world of work. This program dates back to 1953 and provides vocational counselling, job placement, and work experiences for youth. They receive school credit but no pay. The vocational work-experience program phase is set up to provide experience for the youth that is directly related to the occupation they want to enter after they terminate their formal education. Teachers, parents, students and employers responding to an evaluation questionnaire indicated that the program was a successful one.

New York City's work-experience program was likewise cited by Burchill (1962). This program was initiated in 1955 and was designed to prevent juvenile delinquency at the senior high school level. The overall design of the program is a functional curriculum with emphasis on job orientation and the basic skills of communications, reading and arithmetic necessary for job adjustment. In addition to attending the core program of the project, youth were also enrolled in physical education classes of the regular program. They usually attended one regular class outside of work education. The co-ordinators of this program also act as classroom teachers. Curricular materials and

units of work have been developed by the staff. Case study material indicates that this program is worthwhile.

A research project which had some similarities to that of the present investigation is that of Longstreth, Stanley and Rice (1964). The problem of this study was to determine if the following characteristics would increase the holding power of the school: (1) a curriculum designed to appeal to the potential dropout; (2) a stable pupil-teacher relationship; (3) a counselor who was immediately available, and (4) afternoon jobs for pay and school credit.

Subjects were selected for inclusion in the program based on school records of excessive truancy and tardiness, retardation in basic academic skills, and poor academic grades. Candidates were classified as either aggressive or passive in an attempt to form homogeneous groups.

The results of the study indicated that almost exactly the same number of experimental students as control students dropped from school. A greater proportion of the aggressive students in both the experimental and control groups dropped from school than passive students. Experimental students significantly improved in attitudes about school, however not sufficiently enough to remain in school. Also, the experimental aggressive students had the poorest initial attitudes about school, but showed the most increase in improved attitudes.

An extensive project dealing with the efficacy of a prevocational curriculum, was conducted in Champaign, Illinois, under the sponsorship of the United States Department of Health, Education and Welfare, and directorship of Karnes (1966). A total of 537 youth

between the ages of 13 and 21 were selected for the project on the basis of below average and failing grades, low achievement, poor social and emotional adjustment, low socio-economic status homes, and below average group intelligence quotients. The youth were randomly assigned to the experimental and control groups. The experimental group were given a special curriculum with work-experience opportunities. The results indicated that the experimental group experienced less absenteeism and more realistic vocational goals. The experimental group did not achieve a higher level of basic skills growth.

Wallace (1970) in a comprehensive review of Co-operative Vocational Education indicates the possibility of this educational structure for the problems with which this study is concerned. Basically, co-operative vocational education involves the student in a productive employment situation. Also, the employment activities must be viewed as having educational significance. To bring about these two conditions it is essential that a partnership and a division of responsibility exist. One of the partners sponsors the educational component of the program and the other sponsors the productive employment component. Both partners are actively and knowingly committed to contribute to the educational development of the student.

Borow (1969) offers a note of caution by suggesting that vocational educators more than other teachers must remain constantly alert to the distinction between considerations of manpower utilization and those of individual development. He suggests that the vocational educator owes his chief allegiance to the fostering of individual development through training and guided work experience.

Certain hypotheses can now be generated: (1) The Wagner students will show no significant inferiority in self-concept to the counterparts in the conventional school. (2) Whatever sex differences may be observed during the "fishing expedition", the Wagner females will be significantly less intelligent than their male counterparts especially on the verbal as compared to the non-verbal components of that general skill. (3) Certain associated banal predictions can be made: (a) There will be a significant difference in socio-economic status between the Wagner students and a normal population. (b) There will be a substantial difference in attendance between the Wagner population and other school populations. (c) There will be a substantial difference in students' feelings towards Wagner teachers as compared to previous teachers. (d) There will be a substantial difference in students' feelings towards the academic and vocational programs offered in Wagner High School.

The "fishing expeditions" concern improvements in academic performance by the students during their stay in the school. It is speculated that significant growth in science, English and mathematics takes place while in attendance at Wagner High School. It is also speculated that \bar{sex} differences will be associated with performance, a general finding in conventional schools (Bardwick, 1971). While there is no theoretical basis for the speculation at present, the results, however, might prove significant for a future theorist.

Wallace (1970) indicates that research to this point has been wanting but there are strong indications that co-operative vocational education will be able to give students a good basic education as well as on-the-job educational training.

The review of the various programs uncovers one major recurring theme, that is: the need to provide opportunity for, and guidance toward, adequate personal and emotional development. Emphasis is also placed on the need for success in developing basic skills.

4. THEORETICAL ORIENTATION

A slow learner, characteristically dull, from a poor socio-economic background, very probably from a broken home which is certainly without models and verbal reinforcements shaping up acceptable academic performance in the conventional school, is likely to define himself in terms of the reinforcements of domains outside the school and its verbally loaded curriculum. This idea is consonant with the recent findings of Gergen (1972). The student will want to do something practical and immediately rewarding in which successful performance will not place a heavy load on his diminished verbal skills but which will suit his relatively strong non-verbal skills.

The boy, much more aggressive than the girl, will want more quickly to throw off the academic burden while his female counterpart plods along more docilely in the conventional school where her comparative quietness, passivity and willingness to work may well have a positive effect on her marks and on the teacher's judgment of her capacity for continuing in the conventional school.

CHAPTER 3

METHOD AND PREDICTIONS

Subjects

A random sample of sixty students was selected from each of year one, year two, and year three students enrolled in W. P. Wagner High School during the 1970-71 school term. The selection was made on the basis of a table of computer-generated numbers. Calculations were conducted on 78 boys and 65 girls, the total number of the original sample who completed all tests.

Because of the nature of its administrative establishment, W. P. Wagner has no counterpart in the conventional school system. Moreover, once it is a school for discards and/or self-discards, no comparative group can be established by a tactic such as selecting and testing a group of random coevals in that system--a task, in any case, beyond the scope of the present inquiry. However, the investigator, partly because of an occasional absence of test norms and partly out of curiosity, decided to glance tentatively at some comparisons. To this end, he randomly selected some students registered in social studies at Ross Sheppard Composite High School which, with boundaries from the river in the south to Calder in the north, and 121 Street in the east to 149 Street in the west, houses a very varied group of people.

Procedure

The following tests were administered in order to generate the data which would permit the testing of the predictions enumerated at the end of this chapter.

- 1) The tests used to gather information were:
 - a) WISC or WAIS. These tests were administered between January and May.
 - b) The Socio-Economic Index (Elley, 1961, adapted from Gough's Home Index Scale, 1949). This test was administered in January, 1971.
 - c) Eysenck Junior Personality Inventory. This test was administered in January, 1971.
- 2) The tests used to measure growth in self-concept were:
 - a) The Self-Concept Scale (Lipsitt, 1958). This scale was administered early in January, 1971 and early in June, 1971.
 - b) Coopersmith's Self-Esteem Inventory (1959). This test was administered early in January, 1971 and early in June, 1971. In addition to the tests administered, information on self-concept was gained from a structured interview conducted with the sample (Appendix A). Some information was also gained from a questionnaire administered to the total population in W. P. Wagner school late in June, 1971.
- 3) The tests used to measure growth in basic skills were:
 - a) Schonell's Graded Word Reading Test. This test was administered to the total population in September and for the purposes of this study the test was re-administered to the sample early in June, 1971.
 - b) Co-operative English Test. This test was administered to the total school population in the fall of 1969. The test was re-administered to those students still in Wagner in June, 1971.

- c) Illustrated Science Test (Reese and Peckens, 1968). This test was administered early in January, 1971 and early in June, 1971.
 - d) Wagner Math Diagnostic Test. This test was administered to the total population of the school in September, 1970 and again in June, 1971. Results were tabulated for those students falling within the sample.
- 4) The effect of the program, school, and teachers was determined by a structured interview conducted with each individual in the sample, and by means of a questionnaire given to the total sample in school late in June, 1971.

Analysis

- 1) The difference between the means of pre- and post- tests was submitted to the t test for correlated means.
- 2) Correlations were calculated between all variables under consideration.
- 3) Differences between sex and years were determined by two-way analysis of variance.

The Instruments

The S-C Scale. The Self-Concept Scale (Lipsitt, 1958) was used to obtain estimates of change in self-concept. The Self-Concept Scale contains twenty-two trait-descriptive adjectives prefaced by the phrase, "I am . . ." and followed by a five-point rating scale. Nineteen adjectives are considered positive or socially desirable attributes, while three are considered negative. The rating

categories, scored from 1 to 5, are entitled "Not at All", "Not Very Often", "Some of the Time", "Most of the Time", and "All of the Time". The three negatives lazy, jealous and bashful, are scored 5 to 1.

Using subjects from grades four, five and six, Lipsitt (1958) reported test-retest reliabilities of from .73 to .91. Concurrent validation was obtained by comparing self-concept scores with scores of the Children's Manifest Anxiety Scale. He obtained a negative relationship between the self-concept scores and anxiety scores as measured by the Children's Manifest Anxiety Scale, for each of the grades and sexes separately. Five correlations of from $-.40$ to $-.63$ were all significant at the .05 level. The negative correlations indicate an inverse relationship between self-concept and anxiety.

Since the students to be tested had poor reading ability, the Lipsitt Self-Concept Scale seemed desirable because of the de-emphasis on facility in reading, simple directions, and the brief amount of time needed for administration.

Self-Esteem Inventory. Coopersmith's Self-Esteem Inventory (1959) consists of fifty items concerned with the subjects' perceptions of: peers, parents, school, and self. Most of the items in the Inventory were based upon items selected from the Rogers and Dymond (1954) scale; several original items were also included. All of the statements were reworded for use with children age eight to ten. Five psychologists sorted the items into two groups--those indicative of high self-esteem and those indicative of low self-esteem. Items are checked as "like me" or "unlike me" and twice the sum of high esteem items marked "like me" and low self-esteem items

marked "unlike me" give the self-esteem score (Coopersmith, 1959, Wylie, 1961).

In its final form, the Inventory was administered to two fifth and sixth grade classes consisting of both boys and girls. The scores obtained ranged from 40 to 100, with a mean of 82.3 and standard deviation of 11.6. The mean score for the boys and girls was not significant. The form of the distribution was skewed in the direction of high self-esteem. After a five-week period, test-retest reliability was .88.

The Inventory was subsequently administered to a total of 1,748 children in Connecticut. The mean score for the males was 70.1, with a standard deviation of 13.8, which was not significantly different from that of the females with a mean score of 72.2 and a standard deviation of 12.8. The distribution was skewed in the direction of high self-esteem. After a three year interval test-retest reliability was found to be .70 with a sample of 56 children from this population (Coopersmith, 1959).

This Inventory was used to supplement the S.C. Scale and was selected because of its simplicity and reading facility for the students under study.

The Socio-Economic Index. The Socio-Economic Index (Appendix B) designed by Elley (1961), was adapted from Gough's Home Index Scale (1949). The original scale showed retest reliability of .99 and a Kuder-Richardson Coefficient of .74. Correlations with other socio-economic scales varied from .65 to .88, and previous research with the scale showed that it was sensitive to differences in verbal

intelligence and achievement. The administration of the scale permits an appraisal of socio-economic level as reported by the pupil himself. Subjects circle "yes" or "no" in reply to twenty questions concerning material possessions of the family.

The Junior Eysenck Personality Inventory. The Junior Eysenck Personality Inventory was designed to measure the two major personality variables of neuroticism or emotionality, and extraversion-introversion in children. The manual accompanying this test states that, descriptively, there is ample evidence to show that many behavioral traits are inter-correlated in such a manner that they give rise to two major dimensions somewhat in the manner of Figure 1. This figure may also be used to indicate the nature of the two factors involved, i.e., extraversion is characterized by sociability, activity, optimism, compulsive behavior, et cetera, while introversion is characterized by unsociable, passive, quiet, thoughtful and reserved behavior. Similarly with respect to neuroticism the unstable person is moody, touchy, usually restless, rigid; while the stable person is calm, carefree, easy-going, reliable. It is not assumed that everyone will be either an extravert or an introvert, or either stable or unstable; people can be found at all intermediate stages between these extremes.

Split half reliabilities for the scales obtained on 3,372 boys and 3,388 girls indicated no great change with age as far as the neuroticism scale is concerned but considerable increase in reliability with age as far as extraversion is concerned.

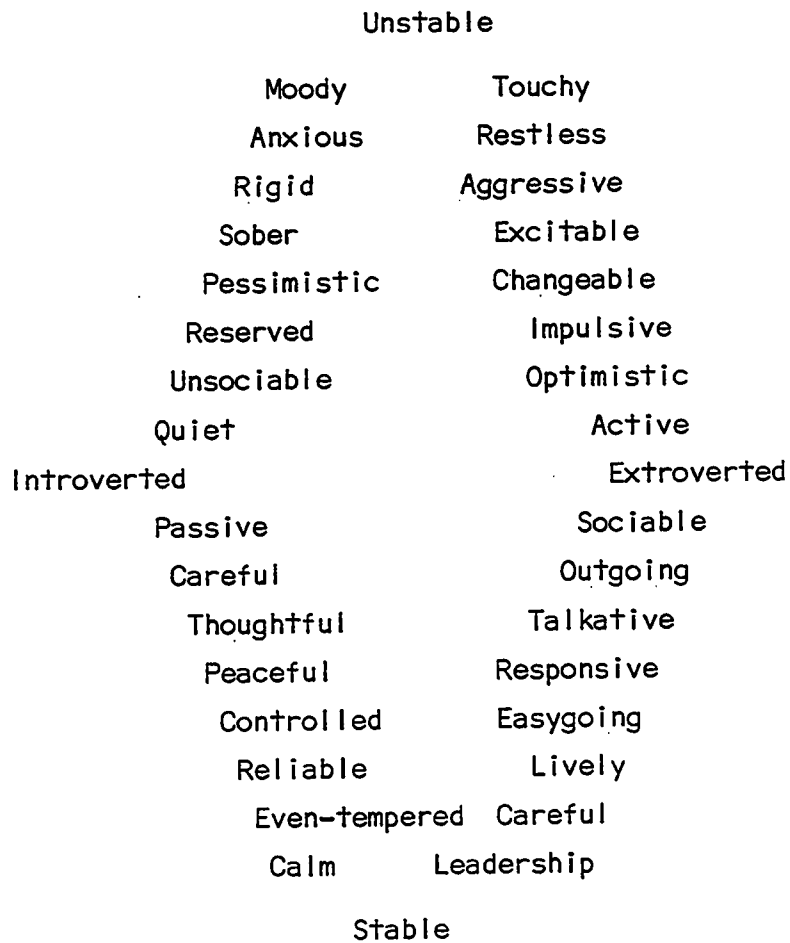


Figure 1. Intercorrelated Behavioral Traits

Test/retest reliabilities were obtained on 1,056 boys and 1,074 girls in all. The time elapsed between test and retest was one month. The reliabilities averaged between .7 and .8; they tended to increase with age for extraversion and a little less so for neuroticism.

As this is a new scale the authors do not make any validity claims. Two hundred twenty-nine children, guidance clinic subjects, have been tested and rated with respect to the extraverted or introverted nature of the symptoms, and it was found that the group as a whole was very significantly above the standardization group with respect to neuroticism, and that there was a very significant difference with respect to extraversion between children showing extraverted symptoms and those showing introverted symptoms.

Schonell's Graded Word Reading Test, Test R1. Test R1 is an individual attainment test in word recognition. This test is composed of one hundred words divided into ten words per year from ages five to thirteen and ten words for the two years fourteen and fifteen. The one hundred words were selected from three hundred words administered individually to approximately sixty children in each of the ten age groups. They are arranged in continuous order of difficulty, the easiest word being read correctly by 55 per cent of children aged five and the most difficult being read correctly by 45 per cent of children aged fourteen to fifteen. The words have no special connection with any method of teaching reading. The test appears to be equally useful in schools following the look-and-say, whole sentence, or phonic methods, or a combined method. The test

has been used repeatedly even at monthly intervals to check progress without any practice effect being detected.

This test provides a rapid measure of efficiency in word attack and is considered a useful preliminary to more detailed tests.

The test was felt to be a desirable instrument for this study in that word recognition is a major problem for most of Wagner's students and a remedial program is currently being conducted for students with this difficulty.

Co-operative English Tests. Content validities are of primary importance in the English tests as they are intended primarily as measures of developed abilities in reading and language usage. The manual claims that content validity is best insured by relying on qualified people to construct the tests and this was done for the Co-operative English Tests.

The Manual of Technical Reports offers a considerable number of estimates of predictive validity that have been conducted on earlier forms of these tests. The 1960 revision is not expected to affect the validity to any great extent. Henderson (1957) reported validities of .22 and .43 on Vocabulary and Total Reading Comprehension with a class of 872 freshmen. The criterion used was first semester college grade point average. Also working with two samples of freshmen, Risler (1959) using first year college scholarship as criterion found validities of .34 and .64 on Vocabulary and Total Reading Comprehension. Using grade point average for three years of high school Stinson and Morrison (1959) came up with validities of .40 and .67 on Vocabulary and Speed of Comprehension. Traxler (1959) working with grade eleven

students had validities of .57 and .67 on the same two dimensions using as criterion teacher ratings of reading ability. At the University of Florida in September, 1958, the correlation between Co-operative English Expression scores and scores on a composite of all regular English tests given in the first semester was .67 for 2449 freshmen.

The reliabilities reported for the English tests in the Manual are alternate-form correlations resulting from administrations of a pair of forms to the same students over a period of no more than one week. Reliabilities of .92, .91 and .92 were found for samples of 445, 404 and 509 grade twelve students on total Reading Comprehension. On three samples comprising 522, 424 and 442 grade twelve students reliabilities of .84, .84 and .81 were recorded for English Expression.

For this study the major advantage for the use of this test was the fact that the present third year students in Wagner High School did this test in year one. This offered the opportunity of measuring growth on the same students after an interval of two years, with the same instrument.

Illustrated Science Test. The Illustrated Science Test (Appendix C) was conceived by Willard F. Reese in Pakistan while there on an assignment for the Institute of Education and Research.

Originally over one hundred four-part illustrated science test items were developed. The first pilot study brought a change from a four-frame to a three-frame structure. Also, through item analysis, an attempt was made to identify the most reliable and valid questions, this process resulting in the final selection of fifty-six questions.

A second pilot study attempted to correlate the Illustrated Science Test results with other tests and teacher assigned grades. This resulted in dropping the number of items to forty.

The authors as yet have been unable to develop norms, but suggest that the Illustrated Science Test, created to cater to the needs for a non-verbal science test in Pakistan, may have an important role to play in measuring science achievement and possibly even potential aptitude in the slow reading student.

The Illustrated Science Test was felt to be most appropriate for this study as the basis for its construction corresponds with the problems encountered in testing the students in Wagner High School. It is important to note that while it would be difficult to compare students in Pakistan with students in Edmonton the basis for use of the Illustrated Science Test rests on the students' inability to use the English language effectively.

Wagner Diagnostic Math Test. The Wagner Diagnostic Math Test (Appendix D) was devised by the Wagner mathematics teachers to determine students' achievement in basic skills and also to measure growth at a later period in time. It was also necessary to have an instrument that the students could cope with in terms of difficulty. This instrument gave the teachers the opportunity to determine students' specific areas of weakness, permitting them to build programs to cover these deficiencies.

In the main, the instrument concentrates on basic skills and covers addition, subtraction, division, multiplication, integers, decimals, fractions, and percentage.

In that most standardized instruments are too difficult for Wagner students, this instrument was felt to be appropriate. This instrument is used with facility by the students and it offers the staff of the school an opportunity for measuring growth and the effectiveness of the programs offered.

SPECIFIC PREDICTIONS

Theory Based

1. There will be a significant difference in I.Q. range between:
 - a) slow learners (I.Q. 75-90) and the population under study;
 - b) boys and girls;
 - c) verbal and performance assessment of the total sample.
2. There will be a significant difference in socio-economic status between the school population under study and a normal population.
3. There will be a significant gain in students' self-concept and self-esteem while in attendance at Wagner High School.
4. There will be a substantial difference in frequency of school attendance between the Wagner High School population and populations of other schools.
5. There will be a substantial difference in students' feelings towards teachers in Wagner High School and teachers in other schools last attended.
6. There will be a substantial difference in students' feelings towards the academic program and their feelings towards the vocational programs offered in Wagner High School.

Ad Hoc

7. There will be a significant gain in students' English achievement while in attendance in Wagner High School.
8. There will be a significant gain in students' science achievement while in attendance in Wagner High School.
9. There will be a significant gain in students' mathematics achievement while in attendance at Wagner High School.
10. There will be a substantial difference in students' emotionality and extraversion-introversion between the school population under study and other school populations.
11. There will be significant sex differences among students attending Wagner High School.

CHAPTER 4

THE W. P. WAGNER PROGRAM AND CURRICULUM

I. GENERAL

The students in the Wagner program have long histories of school failure. Their attitudes toward learning, as well as their attitudes toward teachers and authority figures in the school, are negative. The past evidence of failure, teacher observations and the interview information would indicate that the students in Wagner manifest a dislike of textbooks; have poor work habits, poor powers of concentration, and inadequate communication skills; lack sustained interest; and have a poor command of the basic skills. Their frustration threshold is low and they are easily discouraged.

Since one of the major problems of these young people is motivational, it was apparent in establishing the objectives for the school that a radically different approach would be essential to hold them in school and to promote their desire to learn. On the basis of what is known about slow learners, it was decided that the curriculum must be meaningful to the students if their interest were to be gained and held. Important consideration is given to the readiness of the individual to engage successfully in the learning activities. The aspiring mechanic is likely to be more interested in literature on engines than in literature in the form of a novel or play. Emphasis is given to success experiences which result in a sense of accomplishment. The belief is that if the student is to set, and continue to

set, realistic goals for himself, some concurrent success has to be realized. Moreover, in establishing realistic vocational goals, promotion of the students' understanding of himself is an important aspect of the curriculum. Through the curriculum it is hoped that the students will develop a positive attitude toward school and society. Thus the curriculum stresses good citizenship. Some work experience is also provided to insure that school experiences are related to future employment, and the work experience might eventually prove to be the most effective portion of the program.

In examining the Wagner curriculum a note of caution is necessary. As the students experience success, we might attribute this success to the nature of the program itself; however, in that the school procedures preclude any possibility of a student experiencing failure, this latter feature itself may be the significant factor, irrespective of the program. We could hypothesize that lack of challenge and the exclusion of situations involving failure could stifle motivation. While the students might be accomplishing more than they have in the past, it is conceivable they are accomplishing much less than they are capable of doing.

Wagner High School is attempting a mammoth task in that the students recommended for admittance might, and probably do, vary considerably in characteristics and ability. The overall criterion used is "slow learning" irrespective of the cause of the slow learning. In attempting to isolate those selective factors that might determine a student's success in a particular program, we must be cognizant of the fact that in the matter of slow learning, there is no single cause-and-effect relationship.

2. SPECIFIC

On a more concrete and curricular level, a report on the W. P. Wagner High School (1970) outlines two major educational objectives of the present W. P. Wagner program:

- (a) The completion of a secondary school program of at least three years' duration designed to let the student attain realistic goals of achievement.
- (b) A specialized curriculum designed to build upon student strengths, which are demonstrable through vocational performance. Inherent within this concept of curriculum is the development of attitudes and behavior which will promote success in adult society.

The nature of the program in Wagner High School necessitates the modification of subject content to meet the needs of the students. The course content in general is teacher initiated and developed.

The relating and granting of provincial credits to course content had been somewhat of a problem as not only are the regular normal courses modified, but other courses have been developed which bear little or no similarity to any provincial courses. Special arrangements have been made with the Department of Education for assigning course credits to students who complete Years Two and/or Three. Year One courses are exploratory and preparatory in nature, and no high school credits are awarded.

Courses are taken in academic and vocational areas with an equal allocation of time assigned to each area. In Year One several vocational areas are explored, each for a period of several weeks.

Students then normally pursue one of these areas in depth during Years Two and Three.

Three basic principles provide the foundation upon which the Wagner High School staff continue to develop special curricula. (Wagner Report, 1970):

- (1) That the educational objectives for our students can best be achieved by building upon student interests, abilities, and aptitude strengths.
- (2) That these interests, abilities, and aptitude strengths can be nurtured through the learning process of discovery, through development, and through utilization with a given vocational setting.
- (3) That the communicative, mathematical, scientific, and social skills can be made relevant by relating them directly and concurrently to developing vocational interests.

These basic principles were implemented in a three year program.

The Year One Program

The process of "vocational discovery" is implemented by means of a "vocational experience orientation program" whereby the student is exposed to a number of vocational and avocational experiences:

- (1) Horticulture/small motors
- (2) Commercial Communication
- (3) Business Education
- (4) Foods
- (5) Institutional Services
- (6) Beauty Culture

- (7) Sewing
- (8) Building Construction
- (9) Building Maintenance
- (10) Drafting/Commercial Vehicle Operation
- (11) Parts
- (12) Merchandizing
- (13) Industrial Metals

The Year Two Program

The process of developing student skill potential is emphasized in the second year program by utilizing discovered areas of vocational interest clustered within specific vocational groups. "Clusters" presently in force for Year Two students include:

- | | |
|--|--|
| (1) Automotives | <ul style="list-style-type: none"> Service Station Auto Parts Auto Repair |
| (2) Industrial Metals | <ul style="list-style-type: none"> Welding Machine Shop Plumbing Sheet Metal |
| (3) Building Construction | <ul style="list-style-type: none"> Heavy Construction Millwork Painting and Decorating Building Maintenance |
| (4) Horticulture | <ul style="list-style-type: none"> Horticulture Small Motors Greenhouse Construction Drafting |
| (5) Foods | |
| (6) Institutional Service
and Home Management | <ul style="list-style-type: none"> Child Care Practical Nursing Institutional Sewing and Laundry Housekeeping, Home Management |
| (7) Beauty Culture | |
| (8) Business Education | |

courses varies from period to period and class to class, the human factor being a major determinant of class activity.

All classes focus on social themes, which also form the basis of the English program, the latter emphasizing the improvement of spoken and written communication skills. Formal aspects of English structure are minimized.

A self-referral corrective-remedial program in reading is in operation for students wishing to overcome reading-learning difficulties. A well-equipped reading laboratory is available where individual instruction is provided.

Mathematics. The Mathematics Department is organized within the framework of the overall school objectives. The courses in mathematics deviate considerably from those of the regular high school curriculum and are generally developed so as to provide the appropriate mathematical background required in the vocational areas.

As far as is possible, Year One students are grouped homogeneously, selection being made on the basis of an achievement test administered at the beginning of the school year. Within the limits of the timetable, Year Two and Year Three students are grouped into classes based on the nature of their vocational area. It is felt that such an arrangement has significant motivational advantages.

The curriculum in mathematics is designed to serve the needs of the student in relation to ability and to vocational and practical needs. Each teacher is responsible for devising a course that best fits the particular situation. A skeleton outline of topics that might be considered is provided.

The Year Three Program

The process of developing skills is continued in the third year. The utilization aspect is stressed by focussing the students' program in more specific areas of vocational specialization. The practical "on the job utilization" of skills is implemented by a work study program.

The Academic Program

The academic program encompasses approximately fifty per cent of the teaching time. Compulsory courses, taken by all students, consist of English-Human Relations, Mathematics, Science, and a choice of Physical Education or Music or Drama.

English-Human Relations. The English-Human Relations program offered in W. P. Wagner is a composite of English and Social Studies designed specifically to meet the needs of students who might have been drop-outs in the regular school setting. The program gives special attention to the interests of the students and tends to focus on current issues and problems. As far as possible the content of this course is related to vocational areas.

The emphasis of the program is on the development of favorable attitudes towards the world of work and towards good citizenship. While the academic discipline is not ignored, it is minimized in favor of activities that students might feel to be currently more relevant.

The curricular structure is flexible and allows matters of personal concern to take precedence over topics which may have been intended as the basis for study in a given period. The content of

Science. In that the students enrolled in Wagner High School have had a past history of failure and frustration in science, the science program is geared to the problem of motivation and the re-kindling of interest in educational progress. Like the mathematics program, the science program is supportive of the vocational area.

Year One of the science program is introductory in nature and affords ample opportunity for the exploration of diverse areas, emphasis being placed on human and animal life. The principles of physiology and biology are covered at an elementary level at this stage. In the second year the program tends to be related more to the students' vocational choice. For those students in the food services, the science course emphasizes those scientific principles that are applicable to this particular industry. For those in Business Education, Home Economics, and Beauty Culture there is a continuation of the Year One biology program. For the remaining students the science program concentrates on the physical sciences. In the third year a few students in programs such as plumbing are given the opportunity of doing further work in the physical sciences.

Fine Arts

Students have the opportunity of taking courses in Art, Music, Drama, and Crafts. The intention of the fine arts program is more avocational than vocational and exposure to these areas is intended to stimulate an awareness and an appreciation for the fine arts. The fine arts are specially important in the school as the students come largely from culturally deprived situations and it

becomes increasingly desirable that the students encounter some experiences in these areas.

Business Education

First year students who show interest in business education are given a seven-week orientation program for one-half day each day. Approximately fifty per cent of the time is devoted to learning to type, twenty-five per cent to learning basic skills as a receptionist where emphasis is on penmanship and filing procedures, and twenty-five per cent to keeping of simple records where students are taught to use adding machines and cash registers properly.

Second year students are registered in the following courses: typewriting, clerical practice, record keeping, shorthand and merchandizing.

Third year students are registered in four or five of the following courses: typewriting, bookkeeping, office practice, shorthand, merchandizing, and business fundamentals.

While it is hoped that content coverage in business education will prepare the students for the world of work as junior clerk-typists, content coverage is not an end in itself as the program also subscribes to the principles adopted for the school and concentrates on basic communication and social skills.

Internship Program

The school is involved in a work study program in which all third year students have the opportunity of spending half-time for one month in an actual working situation. Over two hundred companies

have made available over three hundred work stations which encompass most of the possible areas of employment upon graduation.

The practical knowledge gained in this experience is seen as having immense value for the personal growth of the student. Teacher assessment of the program would indicate that this experience has a significant effect upon the development of maturity in the students.

Physical Facilities and Equipment

W. P. Wagner is a new school with modern up-to-date equipment. The classrooms are bright and designed for the particular use intended. The shops are of a good size for the numbers of students enrolled in each shop course. The office and pupil personnel areas appear to be adequate for the purposes of the school.

The school is organized in suites related to subject areas. With the library centrally located, the school has a series of work-rooms for the use of teachers.

The school is well equipped with auxiliary space such as the instructional materials center, reading laboratories, and mathematics laboratory. The infirmary and health services are provided with special quarters that are well utilized. A cafeteria provides light lunches, but is not used as much as might be expected.

Operational Cost of School

Wagner High School was built at a cost of 4.5 million dollars and was equipped at a further cost of 1.5 million dollars. Federal funding provided 100 per cent of the initial cost. Operational costs were then assumed by the Edmonton Public School Board and were supported by Supplementary Requisitions.

In a summary of revenue and expenditure for Wagner High School Meen (1971), the Secretary-Treasurer for the Edmonton Public School Board, reports on the cost of educating the Wagner student as compared to the rest of the system. System per-pupil costs were:

Elementary	\$704.72
Junior High	861.17
Senior High	1089.25
Average	829.52
Wagner	1323.55

The Wagner per-pupil cost exceeds the High School per-pupil cost by \$234.30, but it should be noted that:

- (1) The system cost includes Wagner;
- (2) The total enrolment of Wagner includes 455 Junior High pupils, or 42.4 per cent of the total Wagner population.

Average Wagner per-pupil cost	- \$1323.55
Average per-pupil cost for Junior and Senior High School in the system	- <u>973.69</u>
Difference	\$349.86.

Should the Wagner costs be eliminated from the system costs, the average system costs would go down and the difference would increase. On the basis of a Wagner enrolment of one thousand students, it can be determined that the cost of operating this institution is \$350,000 more than that of another high school of comparable size with a regular program.

CHAPTER 5

ANALYSIS OF THE DATA

Predictions--Theory Based

Prediction 1: There will be a significant difference in I.Q. range between

- a) slow learners (I.Q. 75-90) and the population under study;
- b) boys and girls;
- c) verbal and performance assessment of the total sample.

Data on the I.Q. verbal and performance scale for both boys and girls is presented in Table I. The mean verbal I.Q. of the total sample was 91.52 while the mean of the performance I.Q. was 96.76. Both the verbal and performance means are above 90, indicating that the population under study is above the upper limits established for the definition of a slow learner. The prediction that there will be a significant difference in I.Q. range between slow learners (I.Q. 75-90) and the population under study appears to be substantiated.

The boys' score on the verbal scale was 94.69, while the girls' score was 87.72. The difference is significant at the .001 level. The boys' score on the performance scale was 99.54, while the girls' score was 93.42 indicating a significant difference at the .001 level. The prediction that there will be significant differences in I.Q. range on both the verbal and performance scales for both boys and girls is tenable.

The total verbal mean of 91.52 is significantly different from the total performance mean of 96.76 at the .001 level indicating that

TABLE I
 MEANS AND PROBABILITIES OF T'S FOR DIFFERENCE
 BETWEEN MEANS ON I.Q. VERBAL AND PERFORMANCE SCALES

	BOYS (N=78)		GIRLS (N=65)		TOTAL (N=143)	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Verbal	94.69	8.36	87.72	9.66	91.52	9.56
	t = 4.62 p = .000***		D.F. = 141 Two Tail		t = 5.58 p = .000***	
	99.54	11.05	93.42	10.99	96.76	11.36
Performance	t = 3.31 p = .001***		D.F. = 141 Two Tail		D.F. = 142 Two Tail	

*** p < .001

the prediction that there will be a significant difference between verbal and performance assessment is substantiated.

Prediction 2: There will be a significant difference in socio-economic status between the school population under study and a normal population.

Data on the Socio-Economic Index for boys and girls in Wagner High School and Ross Sheppard High School is presented in Table II. The mean of the total group in Wagner is 10.17 while the mean in Ross Sheppard is 15.15 indicating a difference significant at the .001 level. The difference in socio-economic status between boys and girls in each school is not significant.

TABLE II
MEANS AND PROBABILITIES OF T'S FOR DIFFERENCE
BETWEEN MEANS ON THE SOCIO-ECONOMIC INDEX

	BOYS		GIRLS		TOTAL	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Wagner High School 143 Boys 78 Girls 65	10.64	3.22	9.60	3.46	10.17	3.34
	t = 1.863 p = .064		D.F. = 141 Two Tail		t = 4.372 p = .000 ***	
Ross Sheppard High School 123 Boys 63 Girls 60	14.95	4.21	15.36	4.78	15.15	4.63
	t = 1.273 p = .272		D.F. = 121 Two Tail		D.F. = 264 Two Tail	

***. $p < .001$

Prediction 3: There will be a significant gain in students' self-esteem and self-concept while in attendance at Wagner High School.

Data on the self-esteem scale for both boys and girls is presented in Table III. The mean of the total group was 57.43 in January and 60.28 in June, indicating a gain which is significant at the .01 level. The boys' gain, from a mean of 59.95 to 63.80, was significant at the .01 level. The girls' gain from 54.42 to 56.06 was not significant.

Data on a two-way analysis of variance on the January self-esteem scores is presented in Table IV. There is a sex difference at the .05 level of significance. There is no indication of a difference between the years nor is there an interaction effect.

Data on a two-way analysis of variance on the June self-esteem scores is presented in Table V. A sex difference at the

TABLE III

MEANS AND PROBABILITIES OF T'S FOR DIFFERENCE
BETWEEN MEANS ON THE SELF-ESTEEM SCORES

	DF	January		June		t	p
		Mean	S. D.	Mean	S. D.		
Total Group	143	57.43	16.76	60.28	16.33	3.079	.002**
Boys = 78	77	59.95	15.05	63.80	14.64	3.218	.002**
Girls = 65	64	54.42	18.16	56.06	17.23	1.145	.256

** p < .01 Two Tail

TABLE IV

TWO-WAY ANOVA OF SELF-ESTEEM FOR BOYS AND GIRLS
JANUARY TEST

Source	df	MS	F
Sex	1	1052.56	3.738 *
Year	2	162.06	.576
Interaction	2	86.66	.308
Error	137	281.60	

* p < .05

TABLE V

TWO-WAY ANOVA OF SELF-ESTEEM FOR BOYS AND GIRLS
JUNE TEST

Source	df	MS	F
Sex	1	2127.00	8.202 **
Year	2	224.59	.866
Interaction	2	224.38	.087
Error	137	259.34	

** p < .01

.01 level of significance appears, but there is no difference between the years nor is there an interaction effect.

While the boys made gains on the self-esteem scale over the testing period, there is no evidence of progressive increase in self-esteem while in attendance at the school. The significant gains that are evidenced over the testing period but not over the three years in the school might be attributed to practice effect.

The prediction of a significant improvement in students' self-esteem and self-concept, as measured by Coopersmith's Self-Esteem Inventory, while in attendance at Wagner High School is not supported.

Data on the Self-Concept scale on both boys and girls is presented in Table VI. The mean of the total group was 78.90 in January and 79.19 in June, an insignificant difference. The boys' mean increased from 78.81 in January to 79.28 in June, which was not significant. The girls' scores of 79.02 in January and 79.08 in June was also not significant.

Data on a two-way analysis of variance on the January self-concept scores is presented in Table VII. The indication is that there is no sex, year, or interaction effect.

Data on a two-way analysis of variance on the June self-concept scores is presented in Table VIII. There is no indication of any sex, year, or interaction effect.

The prediction of a significant increase in students' self-concept scores while in attendance at Wagner High School appears to be false on Lipsitt's Self-Concept Scale.

The only conclusion to be drawn is that no development has taken place in Wagner students over the three years in this dimension

TABLE VI
MEANS AND PROBABILITIES OF T'S FOR DIFFERENCE
BETWEEN MEANS ON THE SELF-CONCEPT SCORES

	DF	January		June		t	p
		Mean	S. D.	Mean	S. D.		
Total Group	142	78.90	9.26	79.19	8.22	.518	.605
Boys = 78 ¹⁴³	77	78.81	8.67	79.28	6.85	.611	.543
Girls = 65	64	79.02	9.94	79.08	9.61	.078	.938

TABLE VII
TWO-WAY ANOVA OF SELF-CONCEPT FOR BOYS AND GIRLS
JANUARY TEST

Source	df	MS	F
Sex	1	5.13	.060
Year	2	153.09	1.784
Interaction	2	85.31	.994
Error	137	85.83	

TABLE VIII
TWO-WAY ANOVA OF SELF-CONCEPT FOR BOYS AND GIRLS
JUNE TEST

Source	df	MS	F
Sex	1	1.13	.016
Year	2	101.53	1.472
Interaction	2	7.78	.113
Error	137	68.97	

of self-esteem as measured by Lipsitt's Self-Concept Scale and Coopersmith's Self-Esteem Inventory.

Prediction 4: There will be a substantial difference in frequency of school attendance between the Wagner High School population and populations of other schools.

The available data on student absenteeism in Edmonton high schools is presented in Table IX. The Wagner 13.4 percentage absenteeism is higher than that for other regular high schools, but is considerably lower than the 25.0 percentage absenteeism in the Continuing Education Center which operated for older students.

The prediction that there will be a substantial difference in attendance between the Wagner High School population and populations of other schools is substantiated with some reservation in that the available data does not cover the same time periods and the methods used for computing absenteeism were not uniform.

Prediction 5: There will be a substantial difference of students' feelings towards teachers in Wagner High School and teachers in other schools last attended.

Students were asked to rate the teachers in Wagner High School in one of the following five categories: very good, good, average, below average, and poor. The data, shown in Table X, indicates that 79 per cent of the students interviewed would categorize the teachers as good and very good. Only 5 per cent of those interviewed rated the teachers below average and poor.

Comments of the students on the teachers were generally highly complimentary. Several references were made to the teachers as being

TABLE IX

AVERAGE PERCENTAGE OF STUDENT ABSENTEEISM
IN SOME CITY SCHOOLS

Source	Date	Percentage
City Survey	1967	9.3
Semester Schools	Nov. 1/70 to Jan. 29/71	11.5
Non-semester Schools	Nov. 1/70 to Jan. 29/71	9.8
Eastglen High School	Oct. and Nov., 1970	9.0
Eastglen High School	Jan. and Feb., 1971	11.0
Ross Sheppard High School	Mar. 1 to 26, 1971	8.9
Continuing Education Center	Sept. and Oct., 1970	25.0
Wagner High School	Sept. 1970 to June, 1971	13.4

TABLE X

RATINGS OF TEACHERS BY STUDENTS
AT WAGNER HIGH SCHOOL

Category	N	Percentage
Very good	31	23
Good	75	56
Average	22	16
Below Average	4	3
Poor	3	2
Total	135	100

"more understanding" and "more helpful". Many students felt that the teachers took more time with them and showed greater concern.

Many students stated that the teachers were easy to approach and acted more as friends than teachers. Comments such as, "teachers joke with you," "they are natural," "student-teacher relationship excellent," "teachers take us as human beings," "no generation gap," and "they treat everybody as equals," indicate the degree of rapport between a large number of students and teachers in the school.

Considerable reference was made to the greater degree of freedom experienced in Wagner High School as contrasted with previous schools. While most references were made positively, some students saw the freedom of the school in a negative light. Some comments were: "too much freedom here," "students are taking control of the teachers," "easy school to sluff off in," "students don't work here because they are not forced to," and "they don't care what you do." Students felt that "the teachers could put on more pressure," and "act as teachers not babysitters." Future studies might relate this difference to a variable such as ethnicity.

While some criticisms of Wagner were offered, only three students indicated that they would rather be in their old school. Previous schools came under severe fire with statements such as "they were always yelling at you," "we were considered inferior," "they didn't care," "I hated school," "my teachers were lousy," and "they didn't teach me anything."

From the interviews the prediction that there will be a substantial difference of students' feelings towards teachers in Wagner and teachers in other schools last attended is found tenable.

Prediction 6: There will be a substantial difference in students' feelings towards the academic program and their feelings towards the vocational programs offered in Wagner High School.

The students were asked to respond to the following question: Which program, the academic or vocational, have you learned the most from? The data found in Table XI indicates that the students were highly responsive to the vocational program.

The 79.5 per cent positive response in favor of the vocational program indicated by the sample correlates highly with the response of the total Wagner population that was in school during the last two weeks of June. Table XII indicates the nature of this positive response to vocational education with respect to the particular question asked.

The data strongly points to the highly positive attitude of the Wagner High School students towards the vocational program offered in the school. It would have to be concluded that the prediction stating that there is a significant difference in students' feelings towards the academic and vocational programs offered in Wagner High School is valid.

Predictions--Ad Hoc

Prediction 7: There will be a significant gain in students' English achievement while in attendance at Wagner High School.

Three sets of scores taken from the English Cooperative Test are presented for consideration. Data on the vocabulary scores are presented in Table XIII. The mean on this test for the boys was 40.78 in 1969 and 56.41 in 1971. The difference in growth over the two year period is significant at the .001 level. The girls showed growth

TABLE XI

STUDENT PREFERENCE FOR THE VOCATIONAL OR ACADEMIC PROGRAM
PRESENTED IN NUMBER AND PERCENTAGE

Program	N	Percentage
Vocational	105	79.5
Academic	17	12.8
Both	10	7.7
Total	132	100.0

TABLE XII

STUDENT REACTION TO QUESTIONS ON
VOCATIONAL-TECHNICAL PROGRAM
PRESENTED IN NUMBER AND PERCENTAGE

	Yes		No		Unanswered	
	N	%	N	%	N	%
Do you feel successful in your vocational-technical program?	324	88.5	39	10.7	2	.5
Do you feel more successful in your vocational-technical course than in your other courses?	268	73.2	92	25.1	3	.8
Would you encourage another student to take a vocational-technical program next year?	305	83.3	57	15.6	4	1.1

TABLE XIII

MEANS AND PROBABILITIES OF T'S FOR DIFFERENCE
BETWEEN MEANS ON THE VOCABULARY SCORES
ON THE ENGLISH COOPERATIVE TEST

	D.F.	Sept. 1969		June 1971		t	p
		Mean	S.D.	Mean	S.D.		
Boys 64	63	40.78	19.67	56.41	20.11	7.10	.000 ***
Girls 32	31	26.74	17.76	39.76	17.98	4.04	.000 ***

*** $p < .001$ Two Tail

from a mean of 26.74 to one of 39.76 which is also significant at the .001 level.

Data on the two-way ANOVA of Vocabulary is presented in Table XIV and it was found that on the vocabulary scores there was both a sex and main effect which was significant at the .001 level.

Data on Level of Comprehension is presented for both boys and girls in Table XV. Scores on Level of comprehension show significant growth for both boys and girls. The mean for boys was 24.99 in 1969 and 46.33 in 1971, indicating a growth which is significant at the .001 level. The girls' growth from 24.89 to 44.53 during the same period is also significant at the .001 level.

An analysis of variance indicates that there is no sex or interaction effect, but there is a main effect within subjects significant at the .001 level. Data on a two-way ANOVA is presented in Table XVI.

Data on speed of comprehension is presented for both boys and girls in Table XVII. An examination of speed of comprehension

TABLE XIV
TWO-WAY ANOVA OF VOCABULARY
(PRE AND POST TEST)

Source	df	MS	F
Sex	1	14186.	16.95 ***
Subjects within groups	94	837.	
Vocabulary	2	6682.	62.95 ***
Interaction	2	49.50	.47
Voc X subjects within groups	188	106	

*** $p < .001$

TABLE XV
MEANS AND PROBABILITIES OF T'S FOR DIFFERENCE
BETWEEN MEANS ON THE LEVEL OF COMPREHENSION
ON THE ENGLISH COOPERATIVE TEST

	D.F.	Sept. 1969		June 1971		t	p
		Mean	S.D.	Mean	S.D.		
Boys 64	63	24.99	17.97	46.33	28.15	5.97	.000 ***
Girls 32	32	24.89	17.79	44.53	23.00	6.05	.000 ***

*** $p < .001$ Two Tail

TABLE XVI
TWO-WAY ANOVA OF LEVEL OF COMPREHENSION
(PRE AND POST TEST)

Source	df	MS	F
Sex	1	177.83	.154
Subjects within groups	94	1155.16	
Level of Comprehension	2	9552.74	47.48 ***
Interaction	2	48.33	.240
Level of Comprehension Subjects within groups	188	201.18	

TABLE XVII
MEANS AND PROBABILITIES OF T'S FOR DIFFERENCES
BETWEEN MEANS ON THE SPEED OF
COMPREHENSION ON THE ENGLISH COOPERATIVE TEST

	D.F.	Sept. 1969		June 1971		t	p
		Means	S.D.	Means	S.D.		
Boys 64	63	27.83	19.59	40.58	21.98	4.57	.000 ***
Girls 32	31	22.36	16.24	40.69	23.99	5.39	.000 ***

*** $p < .001$ Two Tail

would indicate significant growth for both boys and girls. The mean of the boys showed a growth over the teaching period from 27.83 to 40.58 which is significant at the .001 level. The girls' growth during the same period was from a mean of 22.36 to one of 40.68, a difference which is also significant at the .001 level.

An analysis of variance has indicated that there is no sex or interaction effect. There appears to be a main effect within subjects significant at the .001 level. Data on a two-way ANOVA is presented in Table XVIII.

The data would clearly indicate that on the English Cooperative Test significant growth in vocabulary, level of comprehension, and speed of comprehension took place over the testing period. The growth was as equally significant for both boys and girls. It is interesting to note that sex was an important variable in terms of the vocabulary scores, the boys scoring significantly higher than the girls.

The prediction that there will be a significant difference in students' English achievement while in attendance at Wagner High School appears to be valid on the basis of the analysis of the scores obtained from the English Cooperative Test.

Data on the Schonell scores is presented for the total group and for boys and girls separately in Table XIX. The mean for the total group was 5.06 in January and 5.23 in June, indicating an increase in growth which was significant at the .001 level. The boys' growth from 5.04 to 5.20 is significant at the .01 level, while the girls' growth from 5.08 to 5.27 is significant at the .001 level.

Data on a two-way analysis of variance on the September pre-test Schonell scores is presented in Table XX. The indication is that

TABLE XVIII

TWO-WAY ANOVA OF SPEED OF COMPREHNSION
(PRE AND POST TEST)

Source	df	MS	F
Sex	1	482.00	.554
Subjects within groups	94	869.92	
Speed of comprehension	2	7163.41	41.78 ***
Interaction	2	124.33	.73
Speed of comprehension Subjects within groups	188	171.46	

*** $p < .001$ Two Tail

TABLE XIX

MEANS AND PROBABILITIES OF T'S FOR DIFFERENCE
BETWEEN MEANS ON THE SCHONELL TEST

	D.F.	September		June		t	p
		Means	S.D.	Means	S.D.		
Total Group 143	146	5.06	2.67	5.23	2.71	4.160	.000 ***
Boys 78	77	5.04	2.63	5.20	2.66	2.513	.014 **
Girls 65	64	5.08	2.72	5.27	2.78	3.656	.001 ***

*** $p < .001$ Two Tail

** $p < .01$

TABLE XX

TWO-WAY ANOVA OF THE SCHONELL ON THE SEPTEMBER TEST

Source	df	MS	F
Sex	1	.30	.042
Year	2	1.30	.179
Interaction	2	10.97	1.516
Error	137	7.23	

there is no sex effect, no difference between the years, and no interaction effect.

Data on a two-way analysis of variance on the June post-test Schonell scores is presented in Table XXI. The indication is that there is no sex effect, no difference between the years, and no interaction effect.

The prediction that there will be a significant difference in students' English achievement in the area of word recognition while in attendance at Wagner High School, as measured by the Schonell test, seems to be only partially borne out by the results. While there is a significant growth during the testing periods, there seems to be a lack of continuous growth over the three years' attendance at the school. A partial explanation for this may lie in the fact that the English lab has been in operation for less than two years. Consideration must also be given to the fact that the study was not longitudinal in nature, following one group through three years, but considered a discrete sample of the population selected concurrently from each of the three annual populations.

Prediction 8: There will be a significant gain in students' science achievement while in attendance at Wagner High School.

Data on the science scores are presented for the total group, for boys, and for girls in Table XXII. The mean for the total group was 20.85 in January and 22.11 in June, indicating an increase in growth which is significant at the .001 level. The boys' growth from a mean of 23.36 to 24.63 is significant at the .01 level, and the girls' growth from a mean of 17.83 to 19.08 is also significant at the .01 level.

TABLE XXI
TWO-WAY ANOVA OF THE SCHONELL ON THE JUNE TEST

Source	df	MS	F
Sex	1	.50	.066
Year	2	.34	.045
Interaction	2	9.66	1.280
Error	137	7.54	

TABLE XXII.
MEANS AND PROBABILITIES OF T'S FOR DIFFERENCE
BETWEEN MEANS ON THE SCIENCE TEST

	D.F.	January		June		t	p
		Mean	S.D.	Mean	S.D.		
Total Group 143	142	20.85	6.04	22.11	6.18	3.764	.000 ***
Boys 78	77	23.36	5.83	24.63	5.75	2.688	.009 **
Girls 65	64	17.83	4.78	19.08	5.23	2.633	.001 **

*** $p < .001$ Two Tail

** $p < .01$

Data obtained from a two-way analysis of variance on the science test given in January is presented in Table XXIII. The indication is that there is a sex effect significant at the .001 level, and it would also appear that there is an interaction effect significant at the .05 level.

Data on a two-way analysis of variance on the science test given in June are presented in Table XXIV. A sex effect is evident at the .001 level. There is no indication of a between-years or interaction effect.

While there is some evidence of science growth over the testing interval, there is no evidence of continuous science growth as measured by the Illustrated Science Test. The prediction that there will be a significant difference in students' science achievement while in attendance at Wagner High School seems to be false.

Prediction 9: There will be a significant gain in students' mathematics achievement while in attendance at Wagner High School.

Data on the mathematics scores are presented for the total groups, for boys, and for girls in Table XXV. The mean of the total group score increased from 13.07 in September to 13.89 in June, a difference which is significant at the .001 level. The boys' scores increased from a mean of 14.20 to one of 15.35 over the same interval which also is significant at the .001 level. The girls' increase from 11.71 to 12.14 was not significant.

Data on a two-way analysis of variance on the mathematics test given in September are presented in Table XXVI. The results would indicate a sex-based difference significant at the .01 level, and it

TABLE XXIII

TWO-WAY ANOVA OF THE SCIENCE RESULTS: JANUARY TEST

Source	df	MS	F
Sex	1	1032.47	36.506 ***
Year	2	26.34	.931
Interaction	2	92.22	3.260 *
Error	137	28.28	

*** $p < .001$ * $p < .05$

TABLE XXIV

TWO-WAY ANOVA OF THE SCIENCE RESULTS: JUNE TEST

Source	df	MS	F
Sex	1	1058.75	.000 ***
Year	2	77.37	.08
Interaction	2	18.22	.54
Error	137	30.30	

*** $p < .001$

TABLE XXV

MEANS AND PROBABILITIES OF T'S FOR DIFFERENCE
BETWEEN MEANS ON THE MATHEMATICS TEST

	D.F.	September		June		t	p
		Mean	S.D.	Mean	S.D.		
Total Group 143	142	13.07	5.88	13.89	6.11	4.390	.000 ***
Boys 78	77	14.20	6.21	15.35	6.33	4.047	.000 ***
Girls 65	64	11.71	5.14	12.14	5.34	1.918	.05

*** $p < .001$ Two Tail

TABLE XXVI

TWO-WAY ANOVA OF THE MATHEMATICS SCORES: SEPTEMBER RESULTS

Source	df	MS	F
Sex	1	206.00	6.709 **
Year	2	229.07	7.460 ***
Error	139	30.71	

*** $p < .001$ ** $p < .01$

would also appear that there is a between-years effect which is significant at the .001 level.

Data on a two-way analysis of data on the mathematics test given in June are presented in Table XXVII. The results indicate a sex difference significant at the .001 level, while the between-years effect is significant at the .01 level.

The Wagner Diagnostic Math Test would indicate that growth in mathematics has not only taken place over the testing interval, but also over the three years' attendance in the school. It is also evident that a sex-based difference exists in mathematics achievement.

The data also indicate that the prediction that there will be a significant difference in students' mathematics achievement while in attendance at Wagner High School is valid.

Prediction 10: There will be a substantial difference in students' emotionality and extraversion-introversion between the school population under study and other school populations.

Data on some samples of students are presented in Table XXVIII. It is interesting to note that the boys' and girls' scores

TABLE XXVII
TWO-WAY ANOVA OF THE MATHEMATICS SCORES: JUNE RESULTS

Source	df	MS	F
Sex	1	346.04	10.533 ***
Year	2	205.48	6.254 **
Error	139	32.85	

*** $p < .001$

** $p < .01$

on both extraversion and neuroticism are relatively equal in the Ross Sheppard students but considerably different in the Wagner students.

The Wagner girls' extraversion score is lower than all other reported scores. The Wagner girls' neuroticism score is higher than all other scores reported. The boys in Wagner seem to have an extraversion score in line with other samples. It is interesting that the Wagner boys' neuroticism score is lower than that for the Ross Sheppard boys.

The evidence would indicate that the prediction that there will be a significant difference in students' emotionality and extraversion-intraversion between the school population under study and other school populations is partially true. The Wagner girls would indicate significant differences from other girl samples.

Prediction 11: There will be significant sex differences among students attending Wagner High School.

Data on sex differences on the variables tested are presented in Table XXIX. The difference in the mean of the self-esteem score for January is significant at the .05 level, while the June difference

TABLE XXVIII

MEANS AND STANDARD DEVIATIONS FOR SCHOOL SAMPLES
ON THE JUNIOR EYSENCK PERSONALITY INVENTORY

Age	Group	N	Extraversion		Neuroticism	
			Mean	S.D.	Mean	S.D.
14	Girls ¹	603	17.47	3.72	13.92	4.81
15	Girls	321	16.71	4.45	13.71	4.58
16	Girls	220	16.47	4.72	13.75	5.11
14	Boys	550	17.84	3.80	10.85	4.83
15	Boys	319	17.23	4.46	10.41	4.99
16	Boys	147	17.41	4.62	9.15	4.69
Grade 8	Majority ²	173	18.17	4.06	13.50	4.97
	Negro	179	15.99	3.68	13.33	5.01
	Mexican- American	172	16.80	4.10	13.33	5.12
Ages 14-18	Girls Wagner	65	14.75	4.86	16.11	4.72
	Boys Wagner	78	17.82	3.82	11.71	5.80
Ages 14-18	Girls Ross Shep.	76	16.76	4.63	15.23	5.03
	Boys Ross Shep.	46	16.52	4.31	14.13	4.72

¹Figures in this group are Junior Eysenck Personality Inventory standardization data for Extraversion and Neuroticism.

²Figures in this group are based on data collected in a central California school district and reported by Arthur R. Jensen.

TABLE XXIX

MEANS AND PROBABILITIES OF T'S FOR DIFFERENCE BETWEEN MEANS
BETWEEN BOYS AND GIRLS ON THIRTEEN VARIABLES
TESTED IN WAGNER HIGH SCHOOL

	Boys			Girls			D.F.	t	p
	N	Mean	S.D.	N	Mean	S.D.			
Self-Esteem									
-Jan./71	78	59.95	15.14	65	54.42	18.31	141	1.978	.049*
-June/71	78	63.79	14.73	65	56.06	17.37	141	2.881	.004**
Self-Concept									
-Jan./71	78	78.81	8.72	65	79.02	10.02	141	-.133	.894
-June/71	78	79.28	6.90	65	79.08	9.68	141	.148	.882
Science									
-Jan./71	78	23.36	5.87	65	17.83	4.81	141	6.078	.000***
-June/71	78	24.63	5.79	65	19.08	5.27	141	5.944	.000***
I.Q. Verbal									
-Feb./71	78	94.69	8.36	65	87.72	9.66	141	4.624	.000***
I.Q. Performance									
-Feb./71	78	99.54	11.05	65	93.42	10.99	141	3.308	.001***
Schonell									
-Sep./70	78	5.04	2.64	65	5.08	2.74	141	-.098	.922
-June/71	78	5.20	2.67	65	5.27	2.81	141	-.169	.866
Absence									
-Feb./71	78	24.82	17.15	65	26.47	15.98	141	-.591	.556
Neuroticism									
-Feb./71	78	11.71	5.80	65	16.11	4.77	141	-4.892	.000***
Extraversion									
-Feb./71	78	17.82	3.82	65	14.75	4.86	141	4.224	.000***
Socio-Economic									
-Feb./71	78	10.64	3.22	65	9.60	3.46	141	1.863	.064
Age									
-Jan./71	78	202.24	13.90	65	200.92	14.20	141	.560	.576
Mathematics									
-Sep./70	78	14.21	6.25	65	11.71	5.18	141	2.569	.01 **
-Sep./71	78	15.35	6.37	65	12.14	5.38	141	3.215	.001***
Vocabulary									
-Sep./69	64	40.76	19.67	32	26.74	17.77	94	4.942	.000***
-June/71	64	56.41	20.11	32	39.76	17.98	94	5.273	.000***

*** p < .001 Two Tail

** p < .01

* p < .05

is significant at the .01 level. The higher scores are in favor of the boys. No significant difference between boys and girls is found in the self-concept scores.

Both the January and June scores on the science test show a difference significant at the .001 level. The higher scores favor the boys.

Differences in scores on the verbal and performance scales of the I.Q. test are significant at the .001 level, and favor the boys.

The Schonell scores on the September and June testing show no sex difference.

Although the girls' score on absence is higher than the boys, the difference is not found to be significant.

The girls show a higher score on the neuroticism scale, which is significant at the .001 level. The higher boys' score on extraversion is also significant at the .001 level.

No significant difference is found in the age or socio-economic status of the students.

The mathematics scores for September show a difference significant at the .01 level in favor of the boys. The June scores show a significant difference at the .001 level, also in favor of the boys.

The vocabulary scores for both September and June show significant differences in mean between boys and girls at the .001 level. The higher scores favor the boys.

There is ample evidence to suggest that the prediction that there will be a significant sex difference among students attending Wagner High School is true.

Other Findings

The eighteen variables studied were correlated against each other with the results presented for boys and girls in Tables XXX and XXXI respectively.

The Self-Esteem and Self-Concept scales show that for the girls, in all instances, the scales correlate at the .01 level of significance; they also correlate at the .01 level of significance for the boys except in the once instance, in which the pre Self-Concept Scale and the post Self-Esteem Scale are found to correlate at the .05 level. The data also show that, for both boys and girls, the Self-Esteem Scale correlates negatively with the Neuroticism Scale and positively with the Extraversion Scale at the .01 level. The Self-Concept Scale for both boys and girls correlates positively at the .01 level with extraversion and negatively at the .05 level with neuroticism. The data would suggest that should the Self-Esteem Inventory, the Self-Concept Scale and the Eysenck Personality Inventory be measuring the same dimensions, there is a degree of reliability in the three instruments.

Absenteeism and Other Variables. It is interesting to note that for the boys self-esteem and absence correlate negatively at the .01 and .05 levels respectively, a finding which is not duplicated for the girls. The boys' absenteeism correlates at the .05 level with neuroticism, while no such relationship is exhibited by the girls. It would appear that the boys show a pattern in which self-esteem, absence, and neuroticism are connected--a situation which is not clearly demonstrated as far as the girls are concerned. However, the

girls do indicate a negative correlation between absence and extraversion at the .05 level of significance. We might also conclude that the correlation between absenteeism and neuroticism for the boys, and the negative correlation between absenteeism and extraversion for the girls, establishes a pattern between absenteeism and certain personality dimensions.

For the girls a positive correlation significant at the .01 level exists between absenteeism and the science scores. One negative correlation significant at the .05 level exists for boys between the same two variables. The boys also show one negative correlation significant at the .05 level between mathematics and absence which is not evident for the girls. It would appear that absenteeism does not affect the girls' achievement in mathematics and science; in fact, there might be some positive benefits from staying away. With the boys absenteeism seems to have an adverse effect on their progress.

While the boys indicate no significant correlation between absenteeism and I.Q. scores, the girls' verbal I.Q. correlates positively at the .01 level with absenteeism. It would appear that the girls who stay away are brighter and have higher marks in mathematics and science.

Examining the Schonell and absence correlations, we find the boys exhibiting a negative correlation significant at the .01 level, while the girls show no relationship. While we could have assumed that presence in school was necessary to develop the skills required in the Schonell tests, the results would indicate this to be true for the boys but not the girls.

A relationship between absenteeism and the Socio-Economic Index exists for the boys at the .05 level of significance. No significant correlation in this respect is evident for the girls.

I.Q., Science, and Mathematics. The boys' I.Q. verbal and performance scores correlate at the .01 level with the science scores. The girls' I.Q. verbal scores correlate at the .05 level with the science scores, while their performance scores correlate at the .01 level of significance with their science scores.

The boys' verbal I.Q. scores correlate at the .01 level with the mathematics scores, while the performance scores correlate significantly at the .05 level in one instance. The girls' I.Q. and mathematics scores show no significant relationship.

In all instances the boys' science and mathematics scores correlate at the .01 level of significance, while no significant relationship is found to exist between mathematics and science scores for the girls.

It is apparent that for the boys a significant relationship exists between I.Q., mathematics, and science. The same relationship is not so clearly evident for the girls.

CHAPTER 6

DISCUSSION, CONCLUSIONS, IMPLICATIONS

1. DISCUSSION

Prediction 1

Prediction 1 dealt with the intellectual assessment of the students in Wagner High School. The data indicate that for the whole group both the verbal and performance scores fall above the upper limit of 90 established in our definition of a slow learner (I.Q. 75-90). On both the verbal and performance scales, the boys are significantly higher than the girls. A significant difference in verbal and performance assessment is shown for the total group, with the performance scores showing the higher average.

In other words, the students in Wagner have a potential in excess of that anticipated. If the programming in Wagner High School assumes an intellectual base of the students which is considerably lower than their actual, we could hypothesize that the school will do little towards greater utilization of the intellectual potential. It could be argued that the objectives of the school are other than those associated with intellectual assessment and should this be the case, we could speculate the possibility of the school confirming the perceived rather than the true ability level of the students. Ignoring the ability potential of the students allows the self-fulfilling prophecy to manifest itself whereby students sell themselves short and teachers sell the students short. During the

course of the interviews, several students made reference to the lack of challenge in the school.

The significant sex differences are consonant with the speculation that girls are more strongly motivated than boys to do well in an academic school. Therefore, those who opt to go to a non-academic school will be markedly duller than their male counterparts.

The students' overall inferiority in verbal performance is likely responsible for their weak showing in academic subjects, all of which today require verbal facility for their adequate understanding.

Prediction 2

The Wagner students came from environments of low socio-economic status. In addition to the average score on the index being low, it was found through the interviews that 34 students out of 135 interviewed came from separated, divorced or foster homes. A relationship exists between low socio-economic status, the broken home and learning difficulties, a not unusual finding.

Wagner High School purports to cater to those students not capable of achieving in the regular school. While the assumption is made that part of student selection should give priority to the ability of candidates, the overall diagnosis of prospective students is limited, resulting in a selection of students with a considerable ability span. The lack of specific information on those students selected would suggest major difficulties in the school establishing appropriate objectives and programs to meet the needs of all students.

While the average intellectual assessment of the students is higher than the limits established for slow learners (75-90) the

average falls into a level that might be considered dull-normal. Clearly these dull-normal students are products of a continuing endowment of "losers" which have characterized liberal-capitalist democracies since their inception. Whether they are innately dull or just the inevitable product of an environment which is generally deleterious to human development is unimportant at the moment. Attempts at compensatory education to remedy the educational lag have failed (Jensen, 1969) and will continue to do so until the larger and more formative variables associated with a completely different non-competitive economic order make some impact on the total child. Any attempt to change school performance without corresponding changes in the larger socializing agencies will continue to be a waste of time although occasional and limited successes may be registered (Friere, 1970).

Prediction 3

Operating from the premise that failure is self-denigrating it was predicted that an environment void of failure would produce a more positive self-image. The results on the two instruments used were not too encouraging. At best, performance on Coopersmith's Self-Esteem Inventory showed limited improvement over the testing period but not over the three years. Coopersmith's Inventory did indicate a significant difference in scores between males and females with the higher scores favoring the males. The best that can be said is that the school's influence is not deleterious.

Wagner High School places considerable emphasis on "self-concept growth" as being an essential feature of the school's

overall objectives. The school feels that it should be able to overcome other kinds of deprivations by enabling the students to experience an environment that is somewhat failure-free.

An obvious explanation of this absence of gain in self-growth, over and above the psychometric deficiencies of the instruments used, is that these students have defined themselves in terms of performances within their reach, ignoring completely the educational criteria which are emphasized by teachers and counsellors who came of age and were educated in the 1950's and 1960's when academic qualifications were at a personal premium for later success in a high-technology society. This has never been a realistic goal for "lost" students who redefine themselves so that there is congruence between what they see as themselves and what they would like to see in themselves.

Prediction 4

Prediction 4 examines the absenteeism rate of Wagner as compared to the rest of the city high schools. It would appear that the Wagner students are absent on the average somewhat more than the students in other high schools.

It could be argued that while the Wagner students indicate an absenteeism higher than other high schools, the rate is low for this particular group of students who were considered to be potential drop-outs in their former schools.

One could also argue that the nature of Wagner should be such that maximum attendance is possible. If Wagner has an atmosphere that is rewarding and a climate that is the reverse of their

previous experience, the attendance rate should indicate this. One might conclude that Wagner is no more than a "drop-in" centre for students until something more viable is available.

In respect to Wagner attendance, it is interesting to note from Tables ~~XXX~~ and ~~XXXI~~ that absenteeism does not readily affect the students' marks, except in the case of the Schonell word recognition scores for the girls. In this case, it is necessary that one receive the individual attention to improve word recognition. The boys do not seem to be affected in the same way.

If, in the main, attendance does not affect achievement, one could question the value of what transpires in the school. For example, why do girls with a higher absence rate do better than the regular attenders in science? Future research would have to focus on what actually goes on in the classroom.

Prediction 5

Prediction 5 concerned itself with the feelings of the students towards their current teachers as contrasted with their teachers in their former school. The response of the students indicated a very high regard for the teachers in Wagner School who were found to be more understanding and sympathetic than those teachers in their former experiences.

Very often we hear the cry for better buildings and equipment, assuming this to be crucial for effective education. Most of the students interviewed in Wagner made little mention of the physical facilities but made considerable comments on the teaching staff. There can be little doubt that the teachers as models are much more

effective in Wagner than the teachers in the students' former settings. Possibly any degree of success enjoyed by the students in Wagner might be attributed to the teachers who do seem to have the facility for working with this type of students.

It might be hypothesized that should these students have formerly had teachers with a same degree of understanding as the Wagner teachers, the need for Wagner might not exist. While it is apparent that the teacher is not the only significant variable in teacher effectiveness, it is an important factor from the perspective of the students.

Prediction 6

Prediction 6 dealt with the students' feelings towards the vocational and academic programs in the school. Without much doubt, the students view the vocational program much more favorably than the academic offerings, a finding consonant with their relatively poor showing in the latter area.

These students have come from schools where they experienced failure in academic areas with the result that they react badly towards any kind of education identified with their earlier experiences. Most of the Wagner students come to this school with the sole purpose of procuring a vocational training and are not interested in programs not directly related to their primary interest.

Perhaps rather than the academic courses in the school, the total involvement should be in the vocational areas with the academic training woven into the vocational programs. It would appear that any form of academic work the school has to offer is met with some

resistance. In spite of the students' preference for the vocational program, it should be noted that many students have achieved a degree of academic success in the school.

Prediction 7

Prediction 7 dealt with English and the amount of gain the students might have made while in attendance at Wagner High School. Significant growth over a two year period was evidenced for boys and girls on vocabulary, level of comprehension, and speed of comprehension. The vocabulary scores showed the boys to be significantly better than the girls. The students also showed significant growth in word recognition over a six month interval.

The school's concentrated effort in the area of English appears to pay dividends. The English department operates on the basis of diagnosis and remediation. To aid the program the school is equipped with a reading lab that allows for individual attention.

It is interesting to note that while both boys and girls experienced significant increase in vocabulary, the difference between the boys' and girls' scores actually increased over the testing interval. This finding would lend credence to Jensen's (1969) thesis that compensatory education does not narrow the gap but only shifts the relative position. In examining the vocabulary scores, we must bear in mind the significantly higher I.Q. mean for the boys.

It would appear that by the time Wagner gets the students, it is nearly impossible to narrow the deficiency gaps that have developed in certain areas of learning. Early deprivations lead to deficiencies that appear to accumulate with time. The implications for elementary education are obvious.

The evidence would indicate that the possibilities of any major shift in achievement at this point is limited and any hoped for remediation in English must be started at an earlier age.

Prediction 8

Prediction 8 concerned itself with the science achievement of the students in Wagner High School. While there is evidence of growth over the testing period, there is no evidence of a significant difference in means between the first, second and third year sample. If we were to assume that all students entering Wagner High School were at the same level of academic achievement, then the evidence would indicate little growth over the period spent in the school. If the students entering Wagner varied yearly in academic achievement, we could assume that some growth in science achievement is taking place. The results would indicate a sex difference with the boys consistently getting higher scores.

The increase of science scores for the boys and the lack of growth for the girls is understandable in that boys tend to be superior to girls in this area. An added factor is the evidence that the boys significantly exceed the girls in both verbal and performance ability. Interest and ability likely account for the discrepancy between the scores for the girls and boys.

It could be questioned whether a science program for the girls has any functional value in Wagner High School. The time spent in the area of science could possibly be better utilized in the vocational area of their pursuit. It should be possible to integrate the needed science knowledge into the vocational program directly.

The bulk of the students in Wagner seem to be directly concerned with their vocational program and it would appear that academic growth at best is only incidental to any skills they might acquire while in school. While their academic development is limited, the students do appear to achieve in areas where they previously experienced failure, even though their learning here is secondary to the vocational purpose.

Prediction 9

Prediction 9 concerned itself with the mathematics program in the school. The evidence indicates that the boys experienced significant growth while the girls' growth was not found to be significant. It is highly probable that the I.Q. differential between boys and girls and the factor of interest play a large part in the score differences. The between-years effect does suggest that over the three years in the school, growth restricted to boys has taken place.

It would appear that the girls are achieving very little in the mathematics program and could probably gain more from some other activity that would fit their vocational program and interest. This is supported by the evidence through the interview where the girls were nearly universally not interested in the mathematics program and saw little relevance in this activity to their vocational program.

Having a mathematics program integrated into the total vocational program could possibly achieve much more than as a course in itself. The boys indicate an ability that would allow for some growth in this area and should a mathematics program be devised that could be integrated into the students' areas of interest, it is likely that growth could take place.

Prediction 10

Prediction 10 dealt with the Wagner students' scores in emotionality and extraversion-introversion indicates that the girls have scored lower in extraversion and higher in neuroticism than other reported scores. The boys' score seem to correspond with the other reported scores but it might be noted that the Wagner boys' neuroticism score is considerably lower than the boys' neuroticism score at Ross Sheppard High School.

It would certainly appear that the girls in Wagner tend towards introversion and instability, indicating the characteristics of moodiness, anxiety, rigidity, soberness, pessimism, being reserved, unsocial, and quiet. This would appear to be congruent with their lower score in self-esteem, and it might well be related to their lower academic and intelligence scores.

The evidence is that the girls in Wagner manifest personality characteristics of neuroticism not found in other samples tested. It would seem imperative that the school give some priority to examination of this area.

The boys appear to fall into the normal recorded average. If anything, the boys indicate a higher degree of stability than those found in Ross Sheppard.

Prediction 11

Prediction 11 concerned itself with sex differences in the Wagner student population. Significant differences between the boys and girls was found in self-esteem, I.Q., neuroticism, extraversion, mathematics, and vocabulary.

The overall evidence seems to establish the fact that the boys and girls represent two distinct populations in the school. Within both groups a not surprising relationship exists between I.Q. and achievement. It would also appear that associated with intelligence and achievement are personality dimensions.

The burden of the cost of compensatory education is once again challenged. The differences among individuals do not seem to diminish in the school. While development may take place, the gap may widen as exemplified by the vocabulary scores. While significant growth took place, the actual difference between the boys' and girls' averages grew.

It would seem that the boys and girls were selected for admission to Wagner for different reasons. It would also appear that the school is unable to decrease the disparity that exists between those admitted.

The school might examine its operation and programming in light of the evidence. One could assume that learning disabilities whether they be congenital or environmental are not readily amenable to remediation. This assumption would vindicate the school but would not answer some of the questions that could be posed concerning the basic premise on which the school is founded. The school makes an assumption that it is able to overcome some of the disabilities the students had when they came to Wagner. While the evidence is not conclusive, there appears to be some evidence that the school is achieving a measure of success in spite of some unresolved problems.

2. CONCLUSIONS

Admission to Wagner is based on a rather loose framework. With exceptions, admission is limited to students who are older than fifteen, must have failed to achieve in mathematics and reading, must have completed grade eight, do not exhibit detectable physical or emotional disabilities, and who fall within a range of I.Q. scores suggesting they are not mentally retarded. The lack of admission requests from girls nearly assures the acceptance of all requests made by girls. Because the criteria presently used for selecting students are operational ones, a wide divergence of characteristics among the students selected is to be expected.

Implied in establishing the school was the commitment to the policy that students who failed to achieve in the more heterogeneous setting should be given a "second chance" to do so in the more homogeneous environment of Wagner High School.

As indicated in the review of the literature, the theoretic position is taken that a learning environment void of the failure syndrome which most of these students have experienced will promote significant positive growth in self-evaluation which in turn will promote a more positive attitude towards school. Should this be the case, we would have to anticipate significant gains in school achievement.

Basically, this study had two purposes. Firstly, an attempt was made to gather some uncollected data about the subjects in the school. Secondly, an attempt was made to test some predictions about the school's effectiveness. In general, it was predicted that there would be an increase in students' self-concept and basic skills while

in attendance at Wagner High School. It was also felt that success in Wagner would be functionally related to the vocational program and/or teacher models.

The data gathered gives us the following information:

1. There is a significant difference in the students' verbal and performance assessment.
2. The boys are significantly higher than the girls in both verbal and performance assessment.
3. The Wagner students represent a low socio-economic group.
4. The Wagner students represent an intelligence range higher than that established for a slow learner (75-90).
5. The boys have a significantly higher score than the girls in self-esteem.
6. The boys and girls portrayed significant growth in English achievement. The gap between the boys and girls in vocabulary maintained itself over a two year testing period.
7. Science growth was experienced over the testing period with a significant sex effect favoring the boys.
8. Successive mathematics growth was experienced by the boys over the three years in Wagner. A significant sex effect exists.
9. The girls show a tendency toward introversion and neuroticism.
10. The Wagner student might be experiencing greater absenteeism as compared to students in other city high schools.
11. The teachers in Wagner are held in high regard by the students.
12. The Wagner students are primarily interested in the vocational programs.

13. The students maintain a positive attitude toward the school and its programs.
14. The school is giving the students learning opportunities not previously experienced by the students.

The information gathered on student characteristics and achievement would lead us to the following conclusions:

1. The Wagner students rather than being a homogeneous group represent a wide range in intellectual ability, achievement, and personality dimensions.
2. The slow learner being defined as one with an I.Q. of 75-90 would suggest that the Wagner students fall within the upper limits and above the accepted range.
3. The boys and girls seem to be two clearly distinct student populations in the school.
4. The selection criteria for Wagner school seem to lack definition and are highly dependent upon the referral school.
5. On the whole, it would appear that the students have not experienced self-concept growth.
6. The students do experience some growth in basic skills.
7. Success in Wagner seems to be related to the teachers and the vocational program.
8. In terms of offering compensatory education, Wagner does not seem to be successful.
9. The school appears to be unable to narrow the discrepancy between the boys' and girls' levels of achievement.
10. For many students, Wagner, like other schools, serves as a custodial service.

11. For many students Wagner gives the opportunity of learning some employable skills.
12. The socio-economic index of the students would indicate the need for extensive home, community, and school liaison.
13. The students are experiencing some measure of success in the learning situation.
14. W. P. Wagner is fulfilling a major service in providing educational opportunities for students with learning difficulties.

3. IMPLICATIONS FOR FURTHER RESEARCH

Jensen (1969) postulates that new consideration should be given to our methods of classroom instruction that put great emphasis on cognitive (problem-solving) learning rather than associative learning. His findings reveal that lower-class children perform as well on associative tasks as do middle-class children. Lower-class children in the I.Q. range of about 60 to 80 do markedly better than middle-class children who are in this range of I.Q. It is conceivable that inadvertently the emphasis in Wagner is still on the cognitive rather than the associative and should this be so, the school's inability to close the gap between the boys' and girls' achievement scores may be accounted for. Should the students from lower socio-economic conditions show strength in associative learning, then instructional techniques to accommodate this needs exploration.

While this study made certain assumptions about "self-concept growth" in a failure-free environment the evidence did not to any degree of conclusiveness indicate this. There is, however, an indication that the girls in the school tend towards a higher degree of

introversion and neuroticism than tested samples reported by Eysenck (1963). This area lends itself to various speculations about the personality dimensions of slow learners, students who fail, and students isolated for special treatment. Each possibility has extensive implications for future directions in this type of education. Especially important is the recent (and compelling) evidence from Gergen (1972) concerning "multiple identity," the idea that a happy person, functioning well in society, may have many "selves" which are elicited in different domains. If some of these selves can be established and measured, thereby replacing the single self-concept test, students in schools like Wagner might show, during the years of attendance there, an improvement in, say, some self concerned with vocations or leisure or both.

Further investigation into the retention power of the school would be advisable. While the Wagner students indicate a higher absenteeism rate than students in other schools it can be predicted that their rate would be considerably higher in regular schools. Perhaps a study could be made of those students who were recommended for Wagner but who for various reasons remained in the normal school.

Attendance and achievement would seem to be an area for further exploration. The lack of any correlations between these areas is puzzling. In fact, it would seem that in respect to any achievement gains, attendance is not a significant variable. Husén (1972) suggests that amount of time devoted to a subject is possibly less important than generally believed.

The teacher variable seems to be crucial in learning situations. The Wagner students indicate major differences between their current and past teachers in teacher attitude towards their problems. To what extent teachers might have averted the present conditions of the students is open to speculation. The desirability of examining the characteristics of teachers that lead to great student effectiveness seems to be self-evident. The extent to which the teacher may affect the environmental aspects of development seems also a desirable area for further study.

This study did not examine the student involvement with law. One could speculate that many of these students are in Wagner because of behavioral problems and the degree to which these problems are ameliorated or intensified in Wagner would make a study in itself.

Any attempt to evaluate W. P. Wagner High School on an economic basis would be nearly futile, as the basis for such an evaluation would have to rely heavily on value judgments. There can be little doubt that on a student-to-student basis the education of students in W. P. Wagner is more costly than the average of other schools.

It is important to note that on the basis of the value judgments of the teachers and students in the school, Wagner High School is performing a most valuable service. The students speak positively about what is happening in the school, and from their perspective, they are receiving an opportunity to get educated, an opportunity that was not available to them in their former setting. Where they had experienced failure and frustration, they are now experiencing success.

One could speculate that a majority of Wagner students would be on the streets if they were required to remain in the regular

academic school. One could also speculate that many of the Wagner students would have remained in the regular high school if no alternatives were open to them. While a longitudinal study would be required to resolve this issue, we are relatively sure that large numbers of students for whatever reason are unable or unwilling to cope with a single track academic program and that a need exists for alternatives. Wagner provides one such alternative which appears to have a benign influence on various dimensions of student performance.

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APPENDICES

APPENDIX A
QUESTIONNAIRE

Name _____ Year _____

1. School last attended _____
2. What were the events that led to your coming to W. P. Wagner?
3. What were your initial feelings about coming to Wagner? Rate your feelings 1 to 5 from highly positive to highly negative.
1 2 3 4 5
4. What are your present feelings about Wagner? Rate your feelings 1 to 5 from highly positive to highly negative.
1 2 3 4 5
5. If given the opportunity of the same program in a regular school would you still come to Wagner? Yes _____ No _____
Why?
6. With whom do you live? _____
7. How many brothers and sisters do you have? Brothers _____ Sisters _____
8. What is your fathers/mothers occupation? _____
9. What courses or program have you enjoyed most and least while in Wagner? Most _____ Least _____
10. What are your future plans?
11. What aspects of the school do you find most rewarding?
12. How would you rate the teachers in this school?
Very Good _____ Good _____ Average _____ Below Average _____ Poor _____
Why?
13. If you were asked, would you recommend Wagner school? Yes _____ No _____
14. Is there much skipping in the school? Yes _____ No _____
If yes why? and what should be done about it?
15. How would you rate the administrators in the school?
Very Good _____ Good _____ Average _____ Below Average _____ Poor _____
16. Which program, the academic or vocational have you learned the most from? Why?
17. Have you made use of the counseling services? Yes _____ No _____
How many times? _____ For what purpose? _____
18. For what reasons are most students in Wagner?
19. What grades have you failed? _____
20. What would you like to add? _____

APPENDIX B
SOCIO-ECONOMIC INDEX

Last Name	First Name	Year
<p>In the following questions, mark your answer by putting a circle in the right place. For example, in the question Does your family have a car? draw a circle around the "Yes" if your family does have a car, and around "No" if it does not. Be sure to answer all questions.</p>		
1.	Does your family have a car?	Yes No
2.	Does your family have a garage or carport?	Yes No
3.	Did your father go to high school?	Yes No
4.	Did your mother go to high school?	Yes No
5.	Did your father go to college?	Yes No
6.	Did your mother go to college?	Yes No
7.	Is there a desk in your home?.	Yes No
8.	Does your family have a Hi-Fi or record players?	Yes No
9.	Does your family have a piano?	Yes No
10.	Does your family get a daily newspaper?.	Yes No
11.	Do you have your own room at home?	Yes No
12.	Does your family own its home?	Yes No
13.	Is there a set of encyclopedias in your home?.	Yes No
14.	Does your family have more than 100 hard-cover books? (4 shelves - 3 feet long).	Yes No
15.	Did your parents borrow any books from the library in the last year?.	Yes No
16.	Does your family leave town at least once a year for a holiday?	Yes No
17.	Do you belong to any club where you have to pay fees?	Yes No
18.	Does your mother belong to any clubs or organizations such as study, church, art, or social clubs?	Yes No
19.	Does your father belong to any such clubs or organizations?	Yes No
20.	Have you ever had lessons in music, dancing, art, swimming, and so on, outside of school?.	Yes No

ILLUSTRATED SCIENCE TEST

THREE FRAME FORM

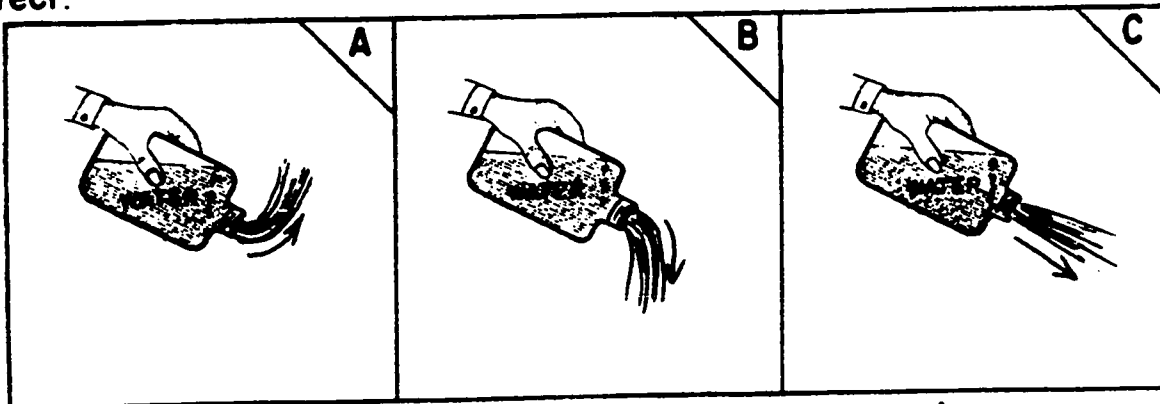
© Willard F. Reese and Russell G. Peckens, 1968

This test is different from any other you have ever taken before. It is designed to test your knowledge of scientific facts and concepts, your powers of observation, and your ability to reason and use good judgement. Each of these factors is of great importance to scientists and technicians.

DIRECTIONS

This is the test booklet. Do not mark or write in any way upon the pages of this booklet. In this test each question consists of three illustrated frames. Only one of the three frames shown for each question will be correct. The frames are labeled A, B and C. A 1 B 2 C 3 D 4 E 5

In the sample question below there are three illustrations of water being poured from a bottle. Frame B is a correct illustration because it shows the water flowing down from the bottle. Frames A & C are not correct.



(Note: The arrows indicate the direction of movement.)

Since B is the correct answer, the space under B in the example shown on your answer sheet is marked like this

Make a similar pencil mark (under A or B or C, for each question) to show which answer is correct. Notice that you need mark only A or B or C; there are no D or E answers.

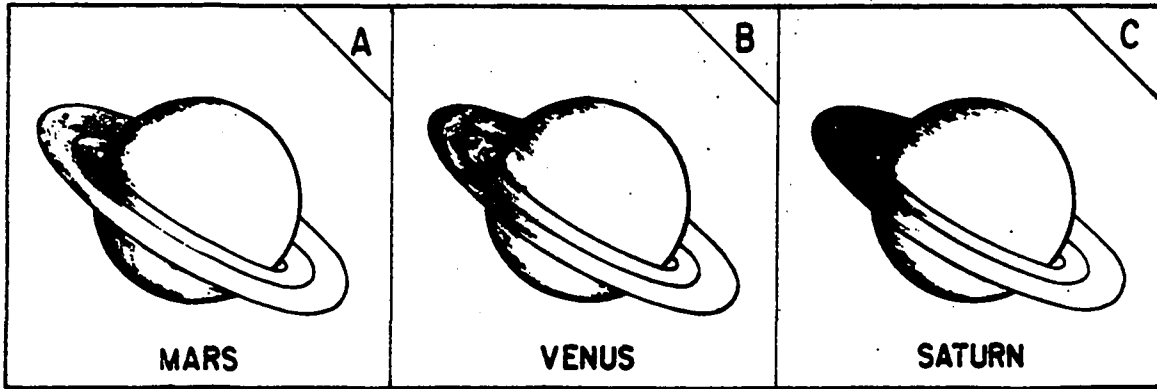
If you decide to change an answer, be sure to erase the mark you do not want, then mark the one you do want - **USE PENCIL ONLY.**

There are 40 illustrated science questions like the one in the sample. Look carefully at each frame and then choose the one correct answer. Mark your answers on the separate answer sheet. Do your best work but do not spend too much time on any one question. You will have thirty minutes to complete the test.

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

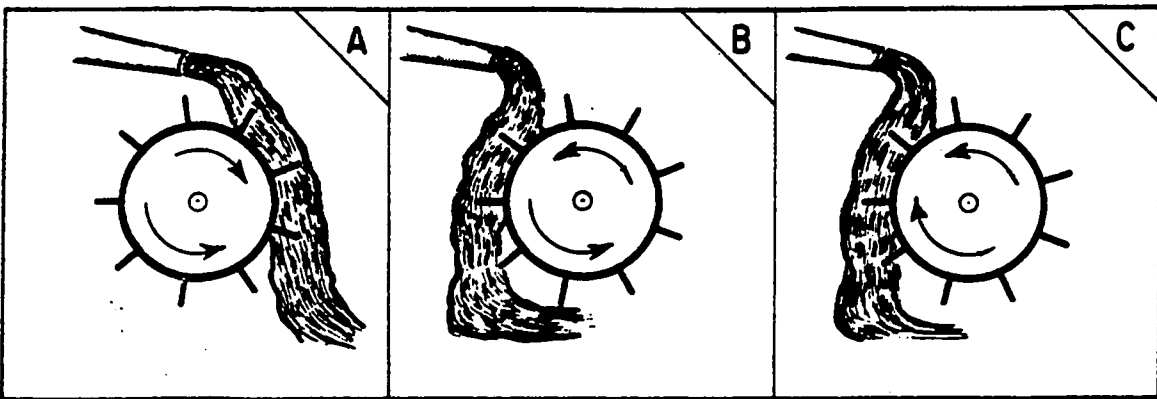
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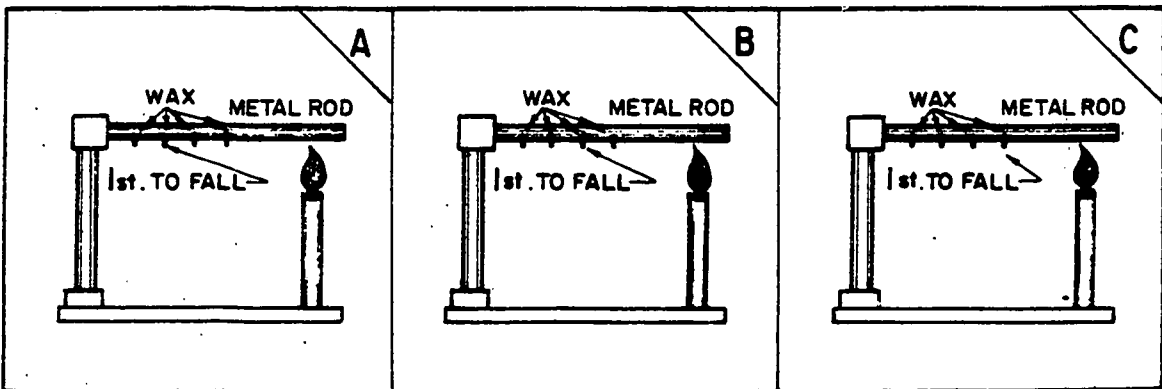
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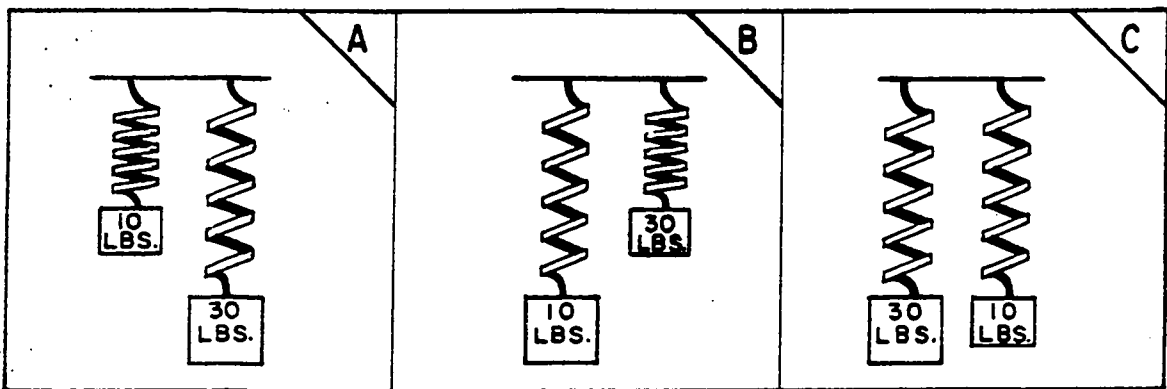
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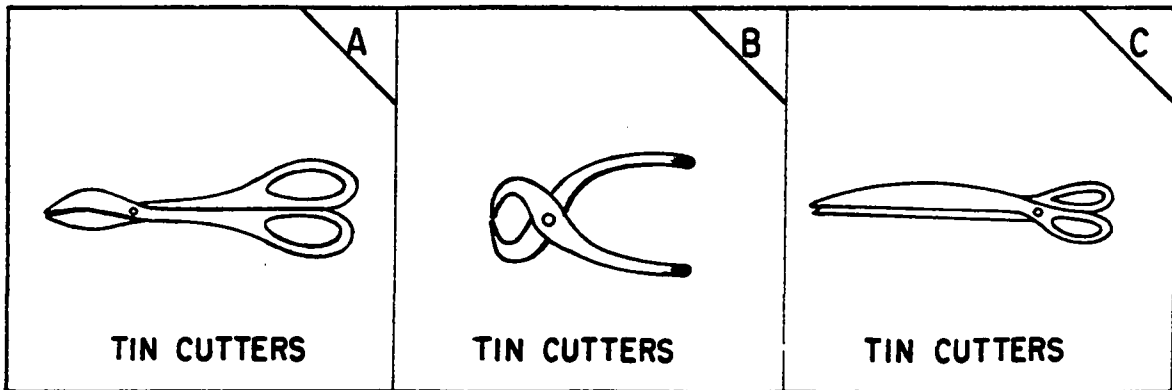
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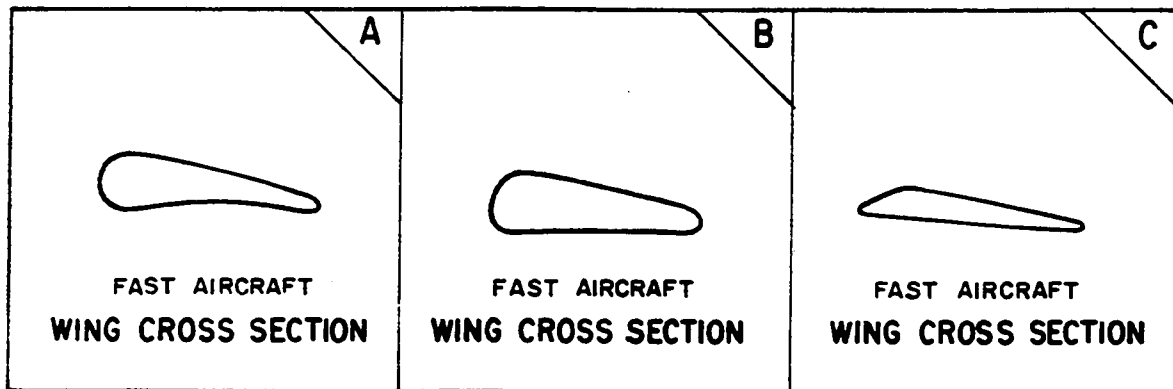
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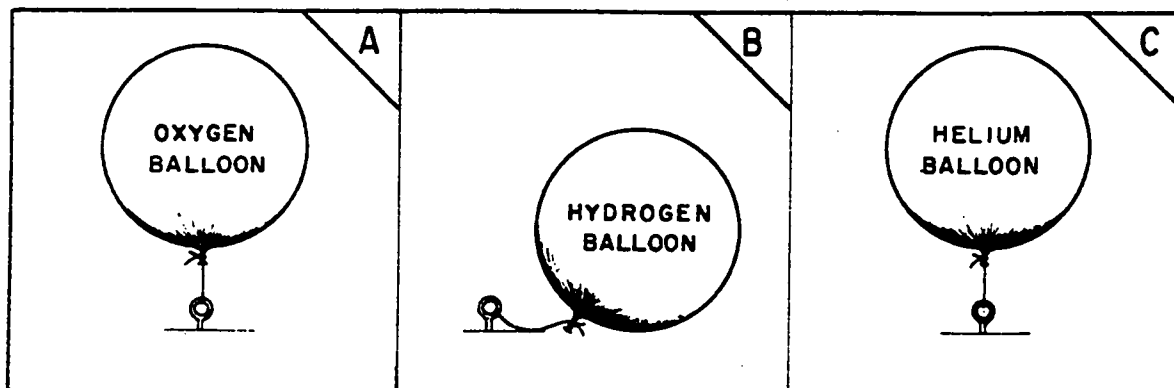
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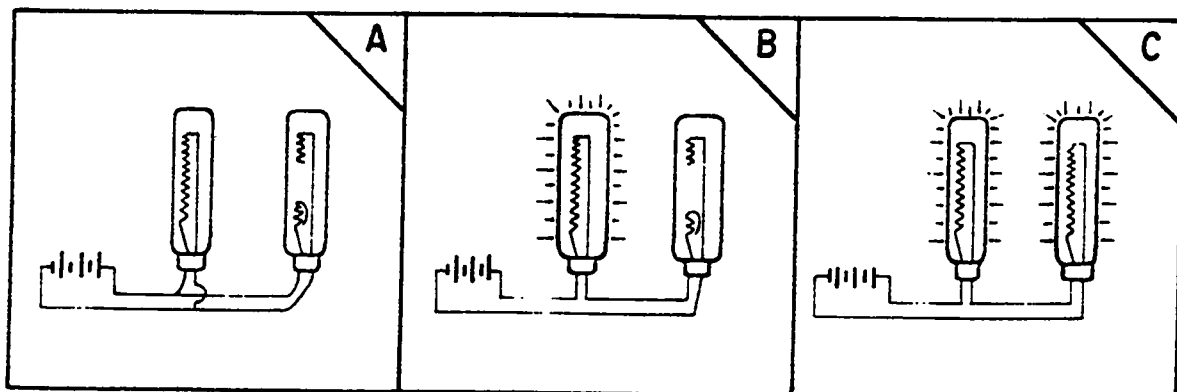
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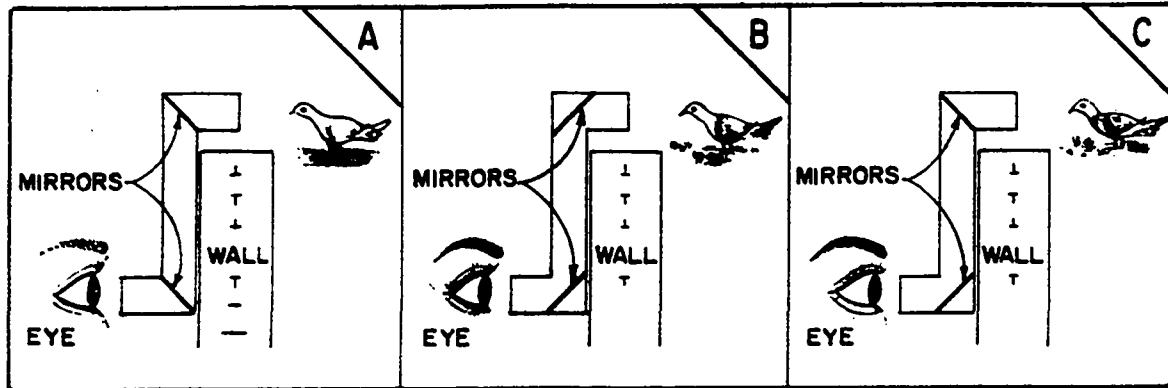
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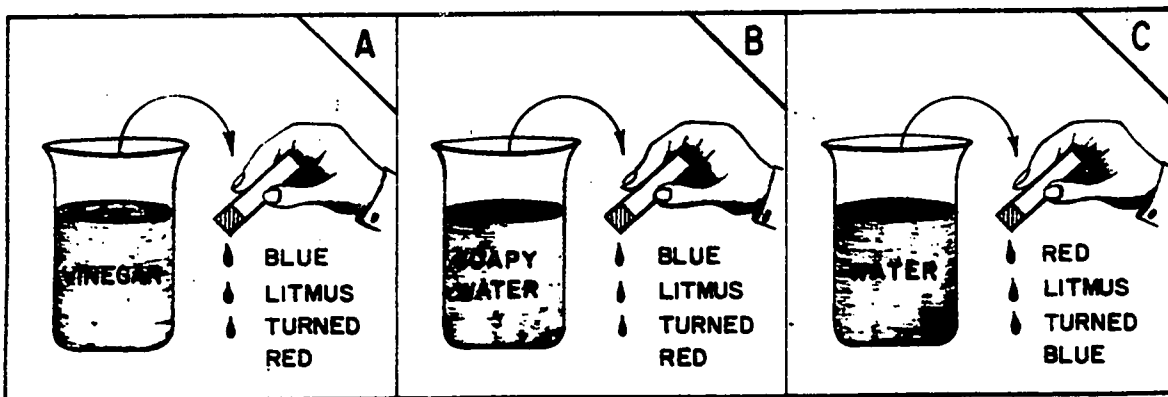
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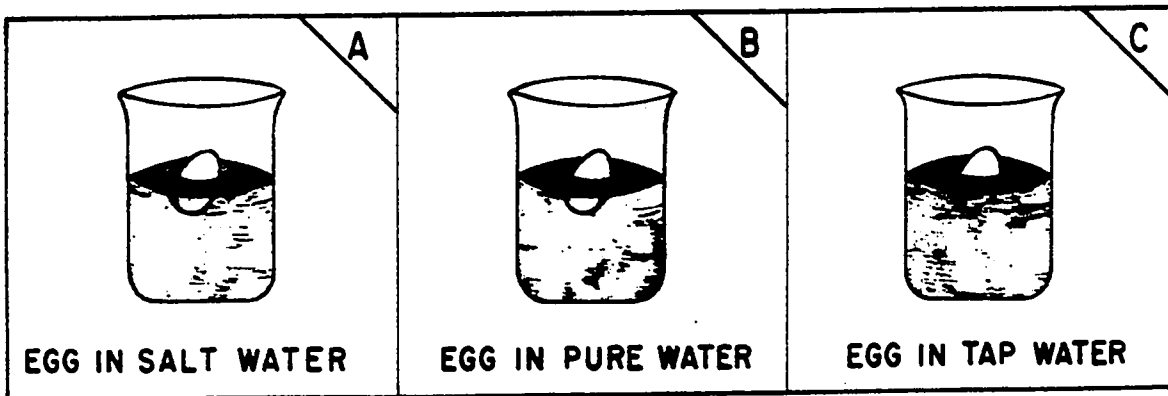
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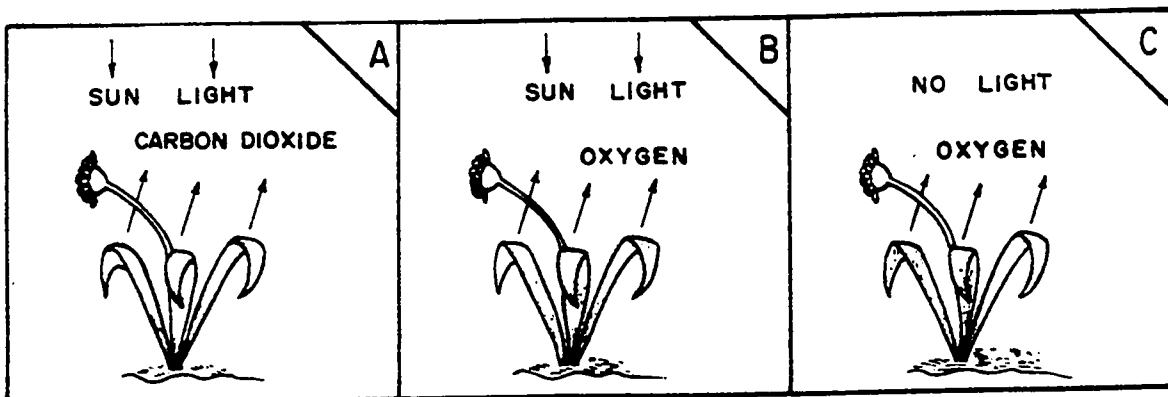
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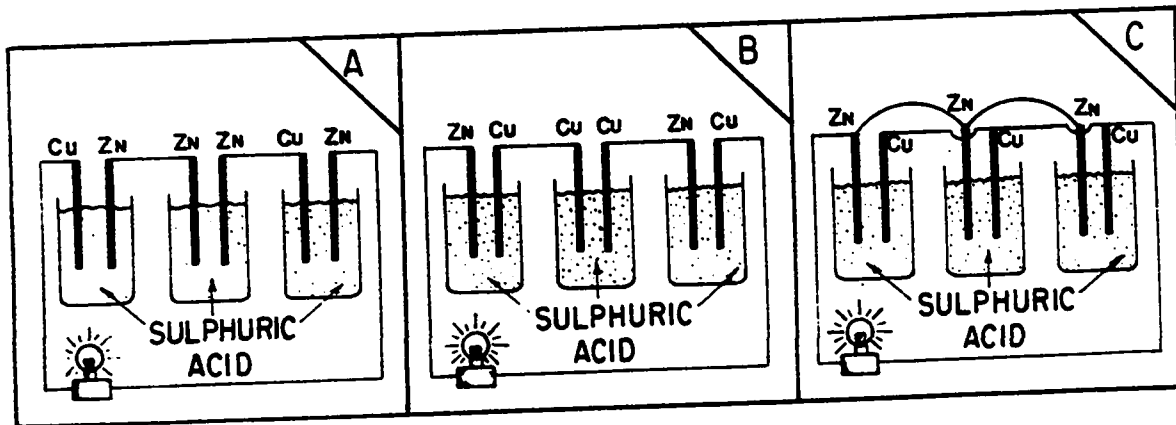
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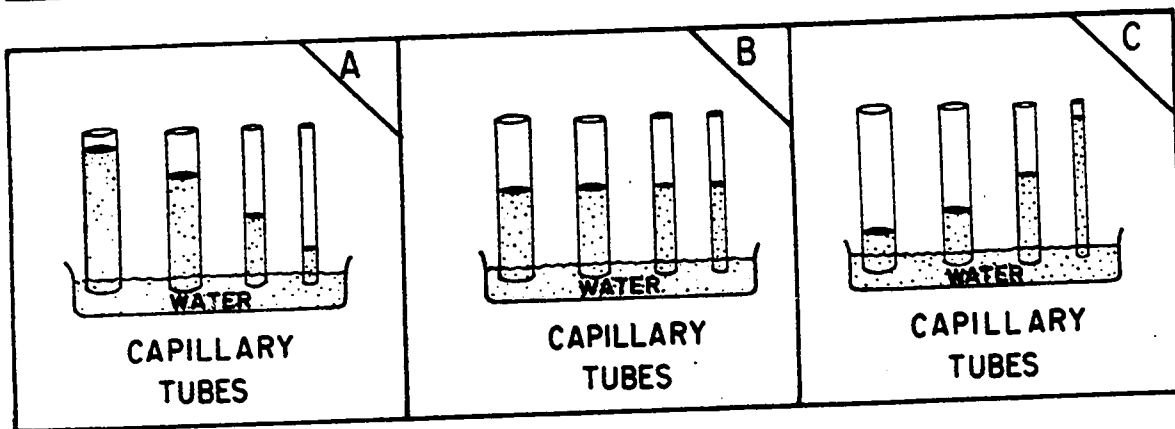
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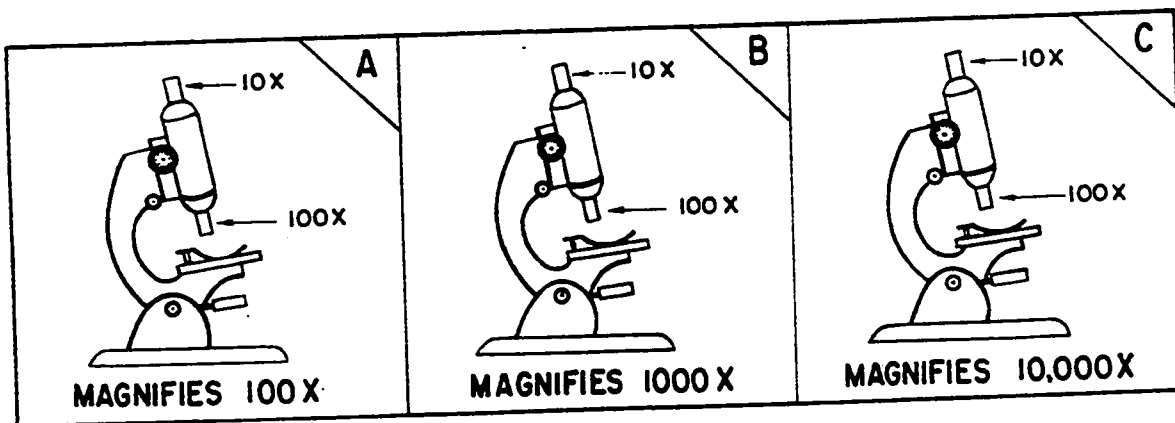
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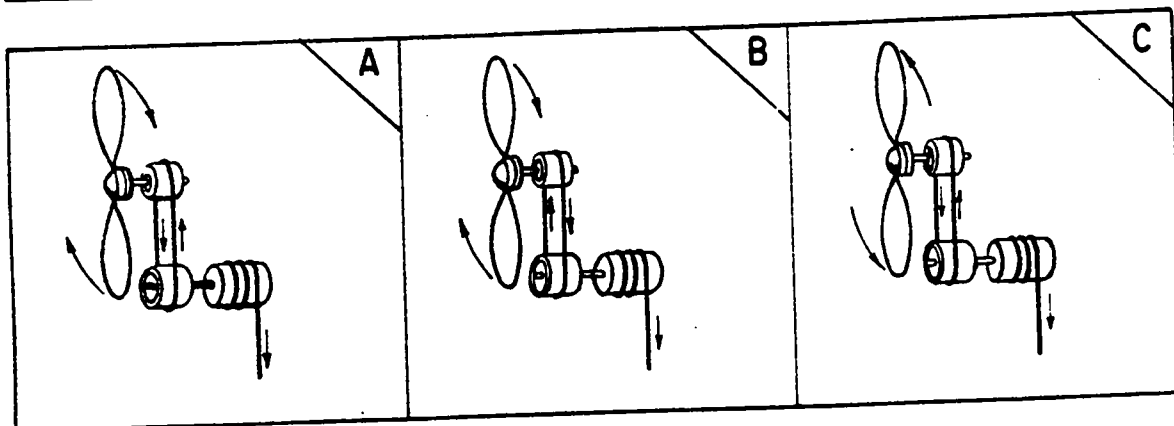
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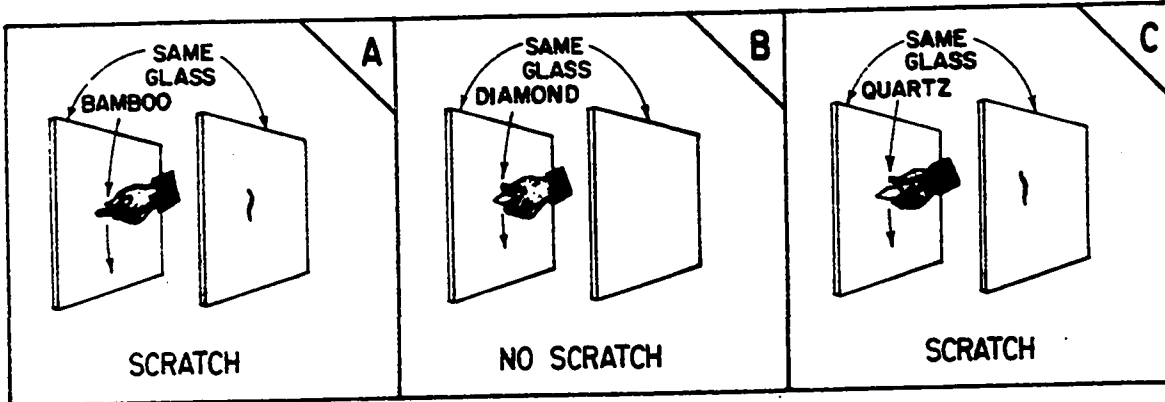
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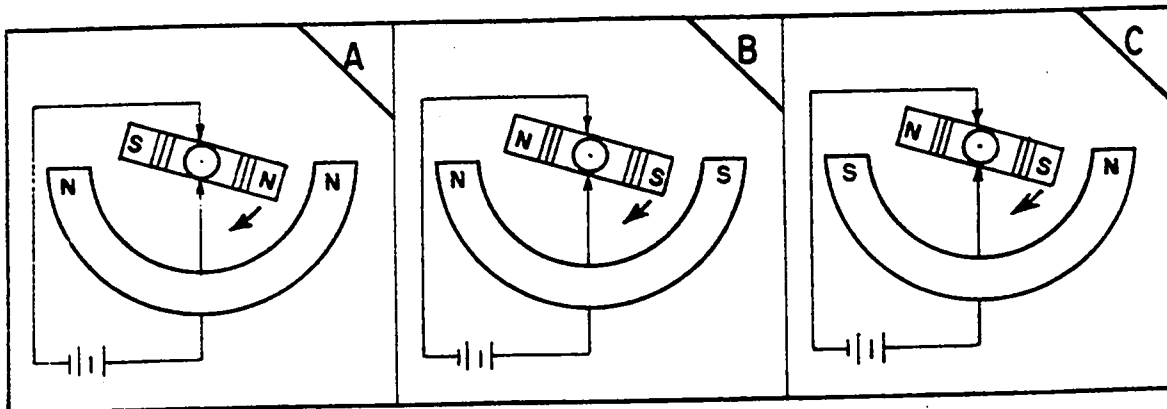
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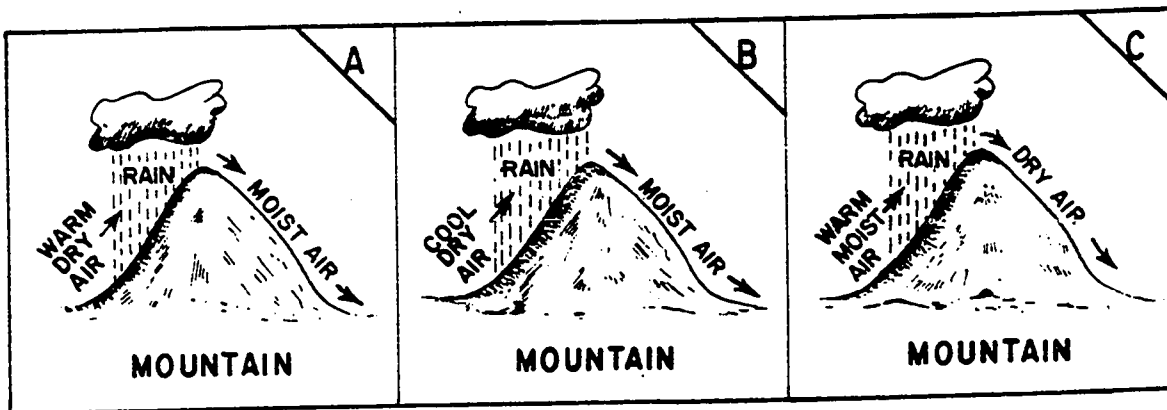
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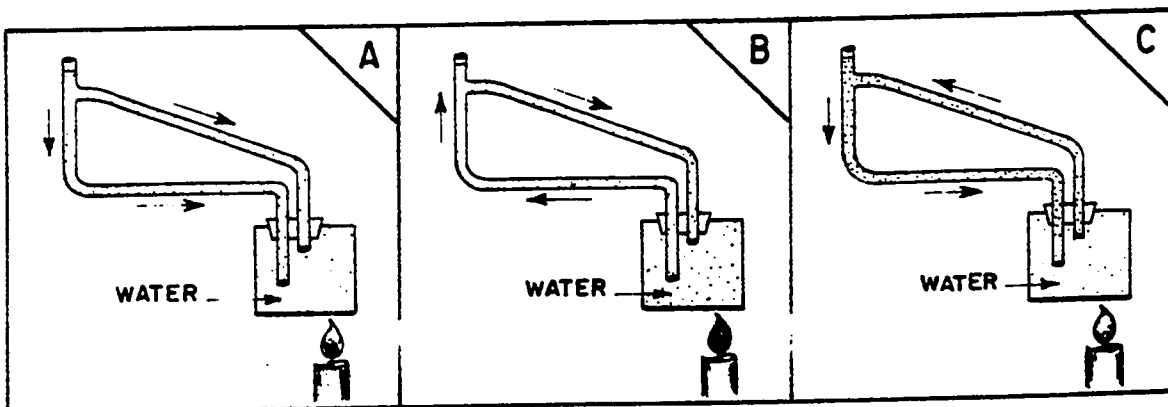
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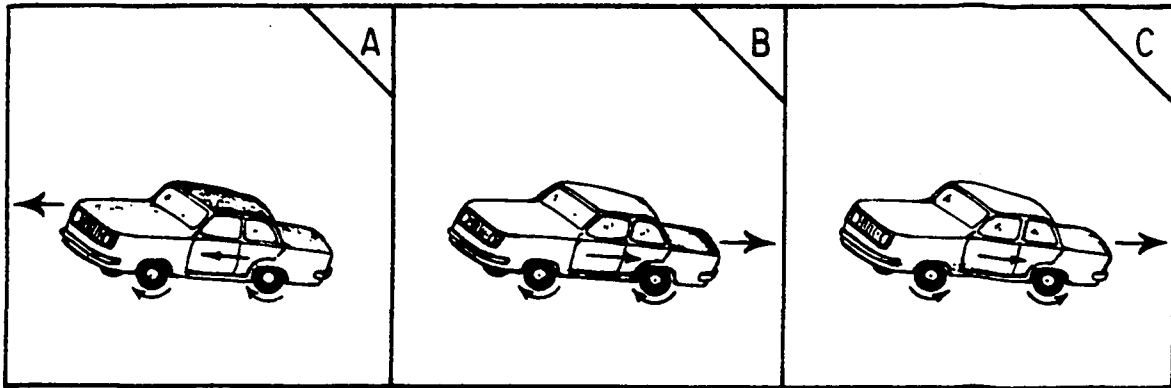
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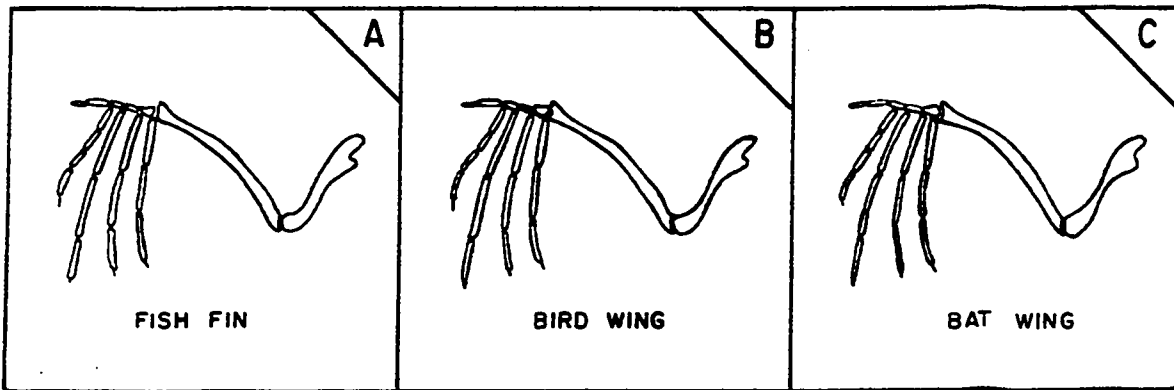
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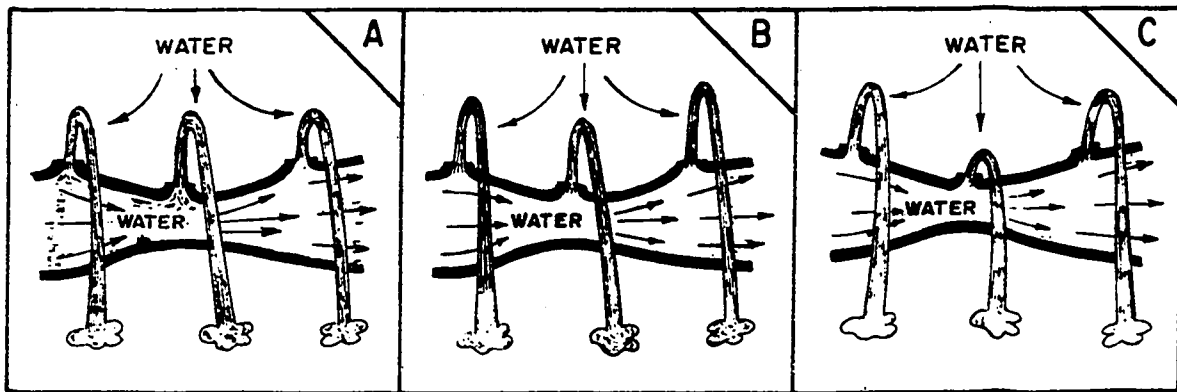
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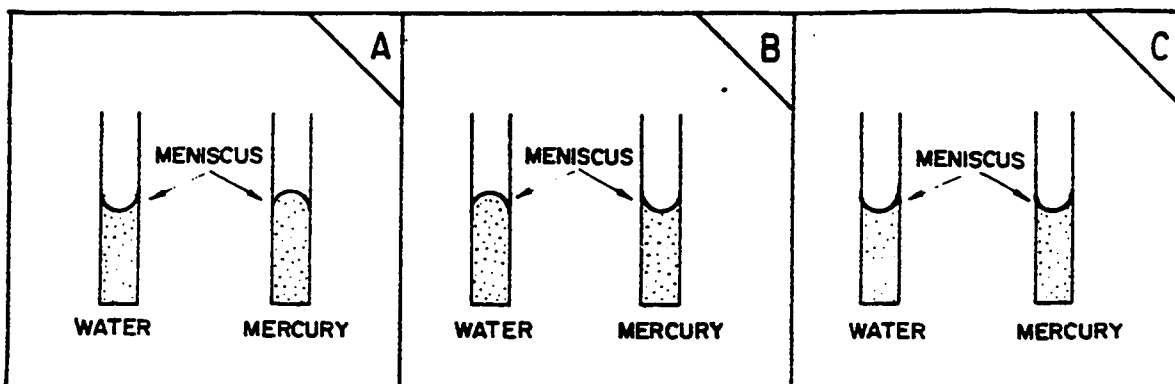
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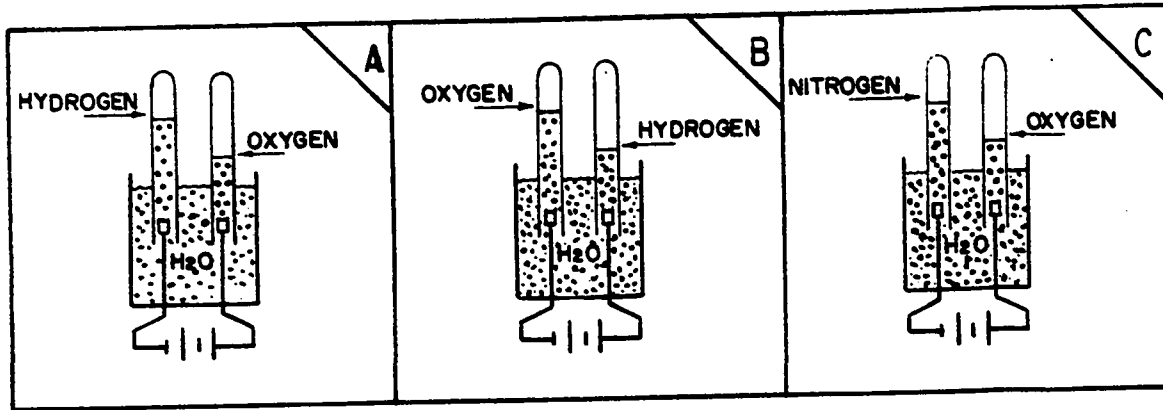
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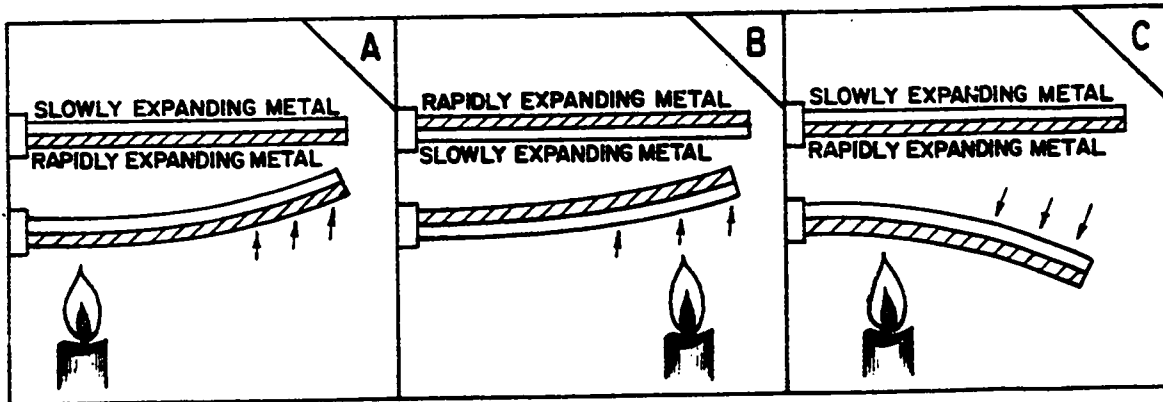
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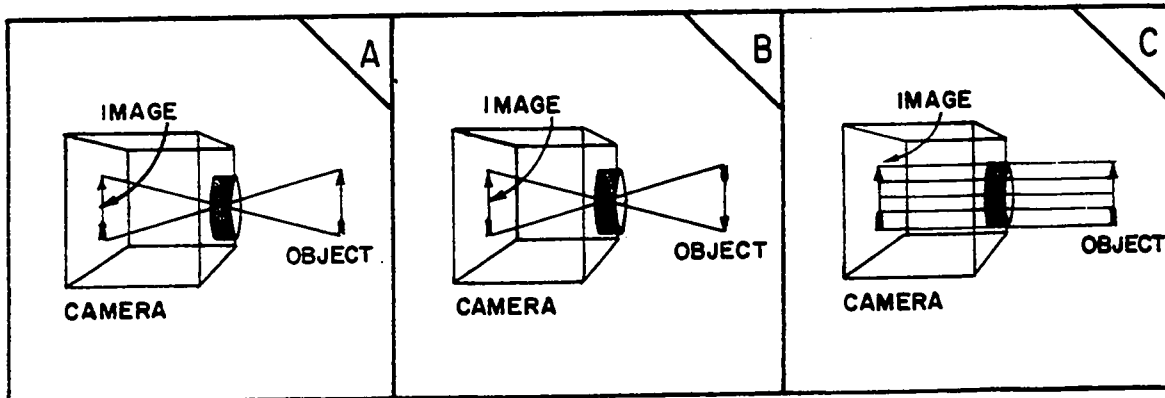
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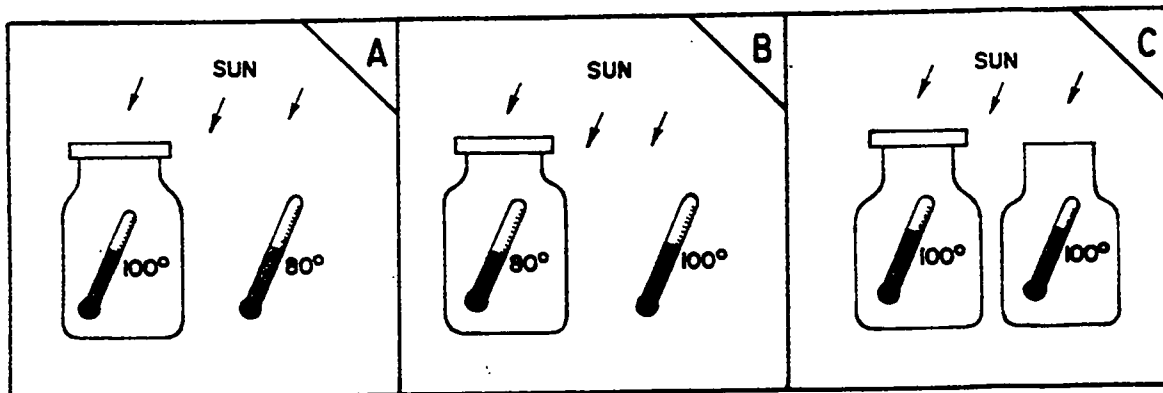
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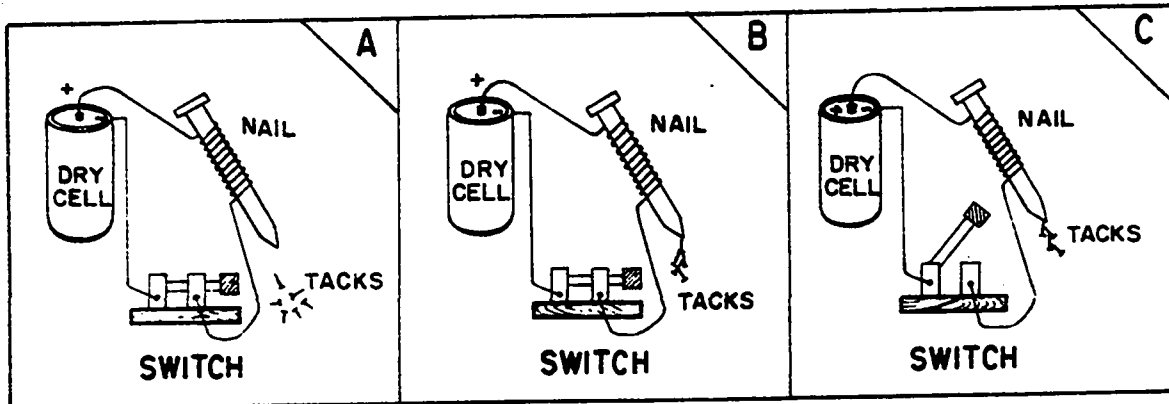
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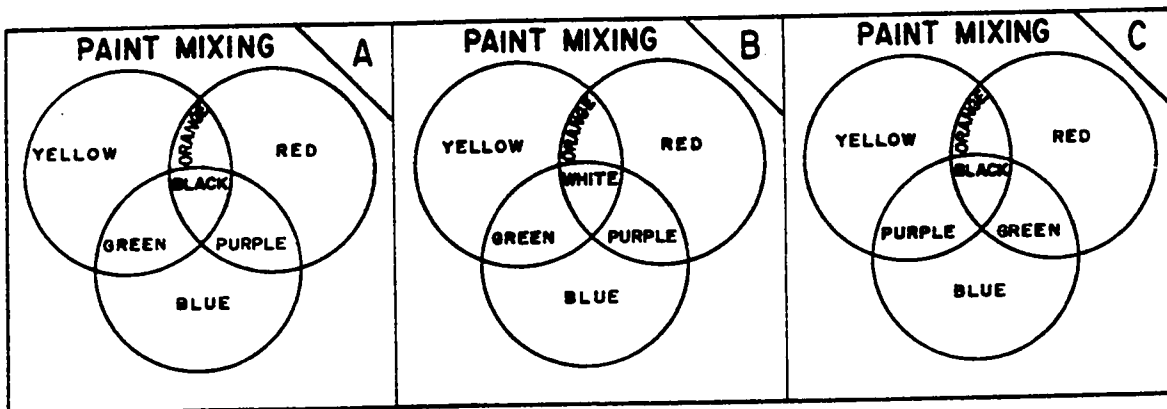
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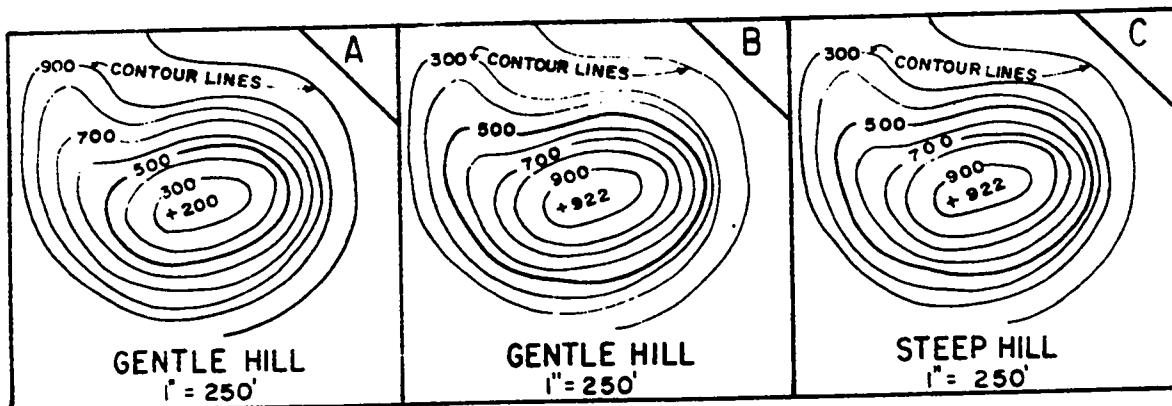
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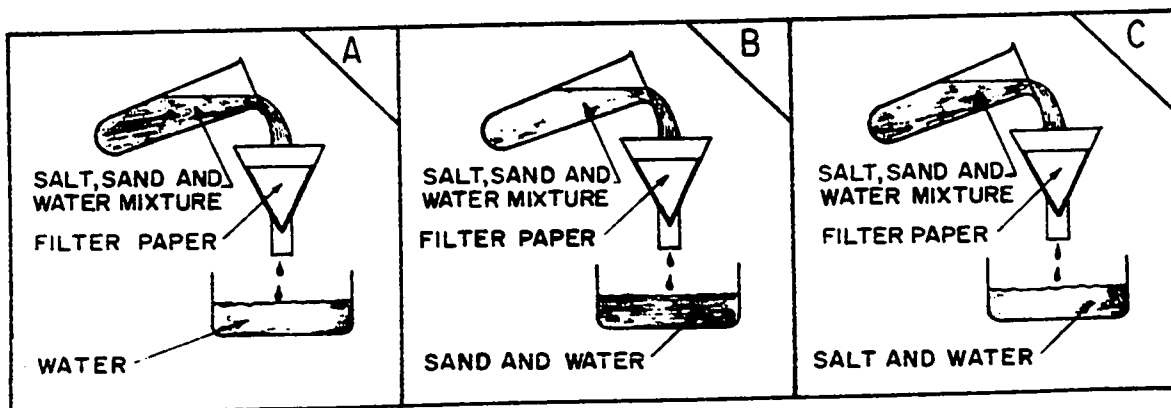
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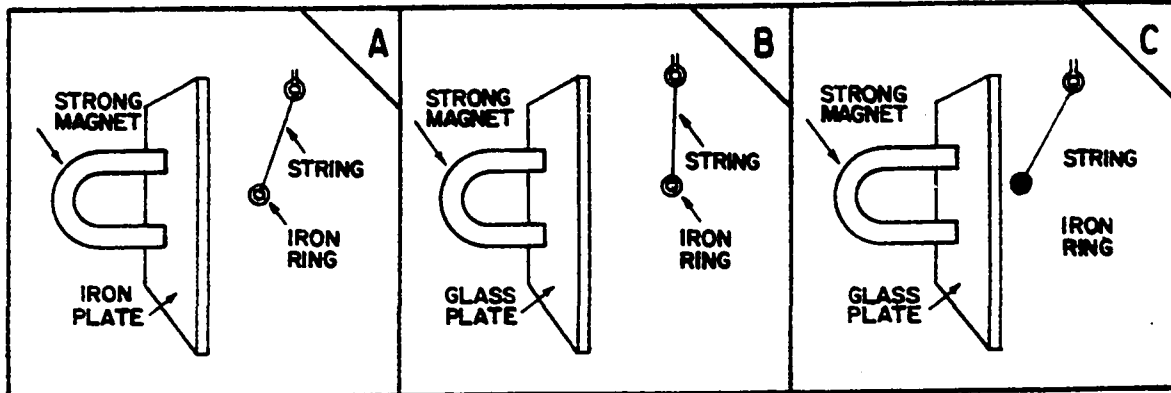
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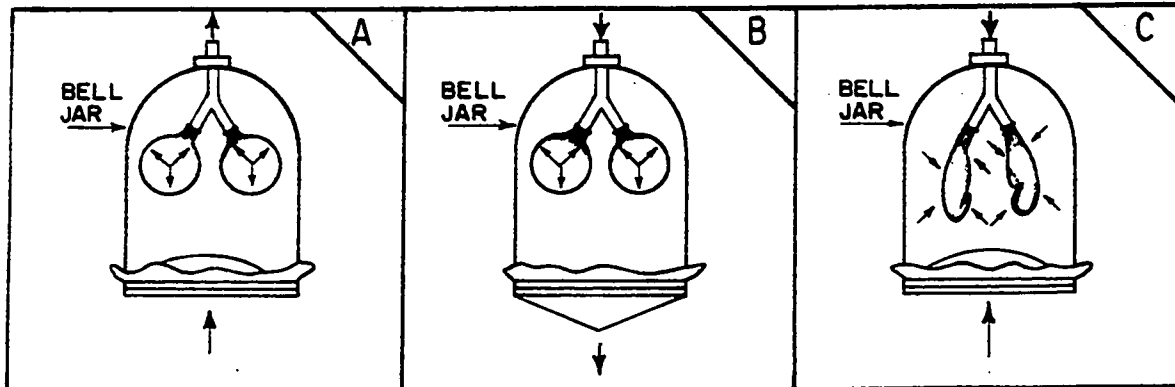
INDICATE YOUR ANSWER ON THE ANSWER SHEET
PLEASE DO NOT MARK ON THIS PAGE

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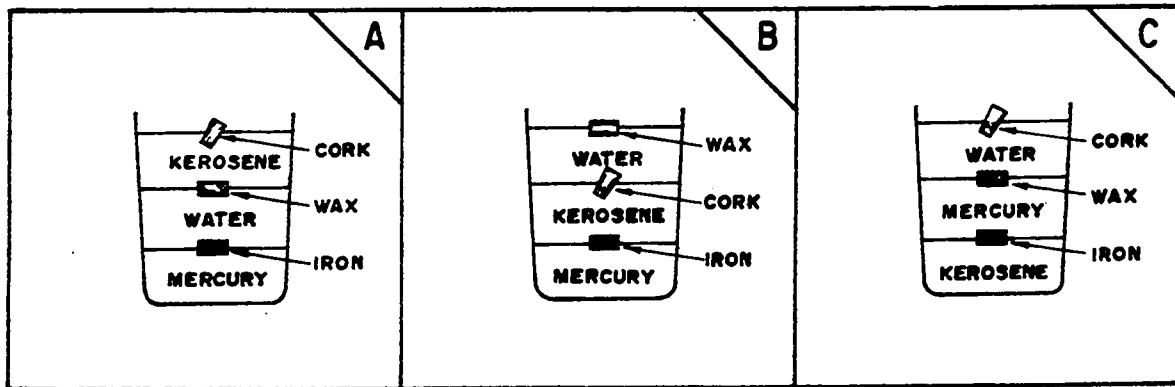
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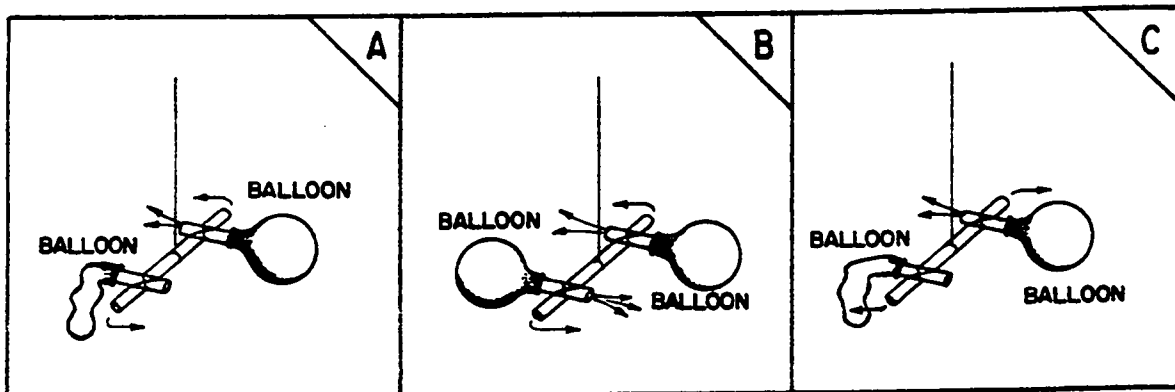
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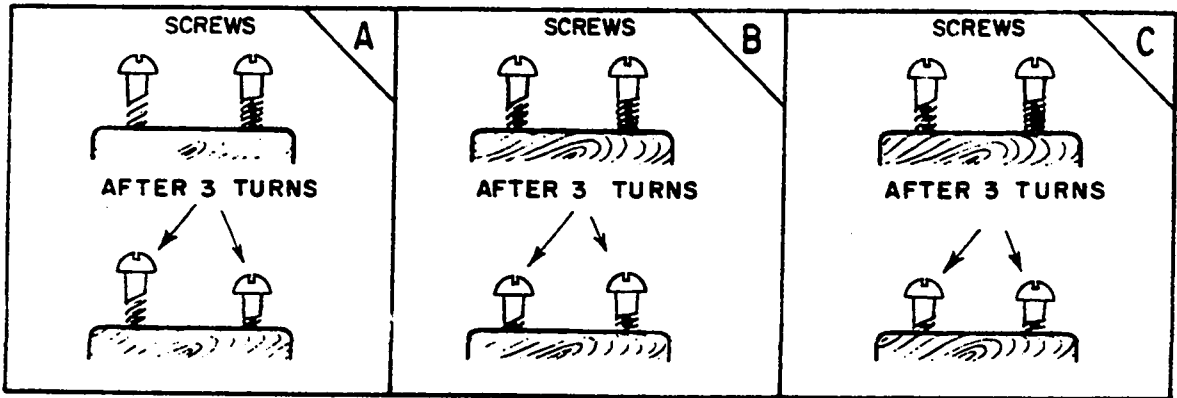
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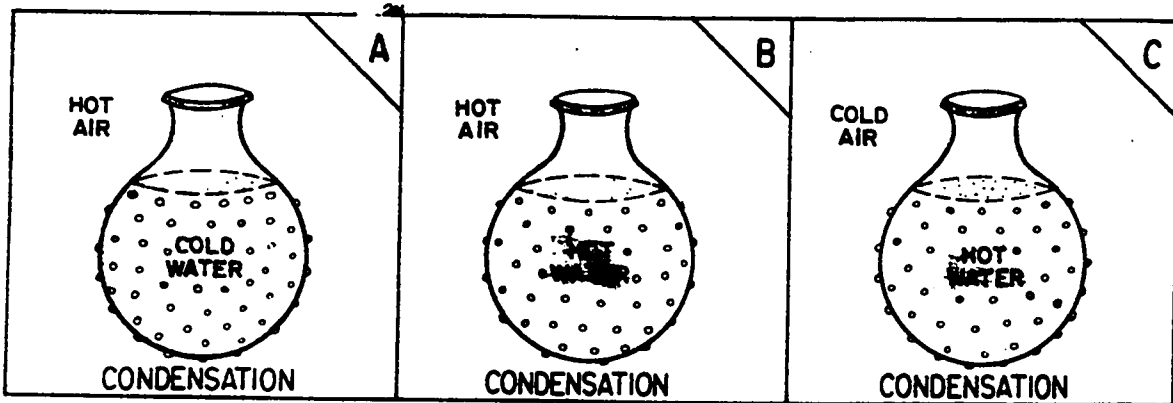
INDICATE YOUR ANSWER ON THE ANSWER SHEET
PLEASE DO NOT MARK ON THIS PAGE

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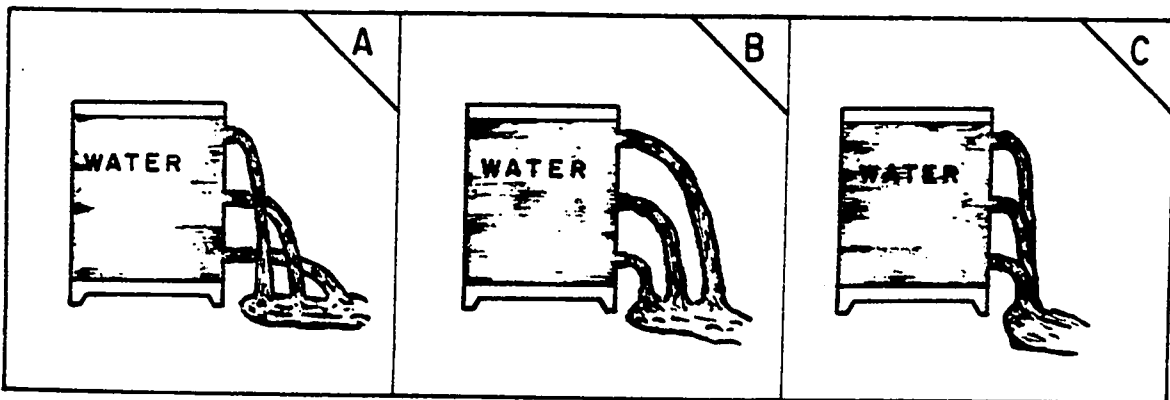
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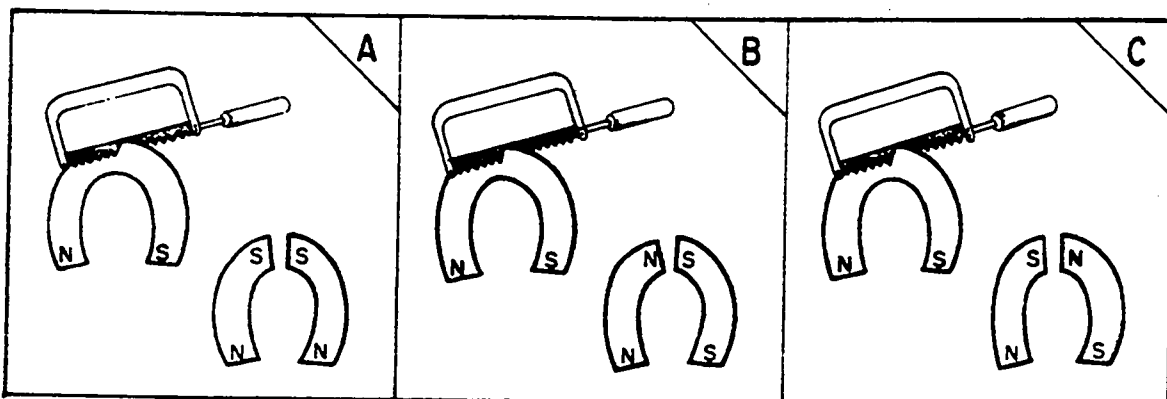
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APPENDIX D

MATH ASSESSMENT

INSTRUCTIONS FOR COMPLETION OF W. P. WAGNER MATH ASSESSMENT

1. Complete the personal data portion at the right side of the Standard Answer Sheet. Use a dull H.B. pencil--marks should be dark and heavy.
2. Mark the letter of your choice of answer on the standard answer sheet with the H.B. pencil.
3. IMPORTANT--Answer starting on the answer sheet at No. 29 answering to 53.
4. Do not write on the question booklet.
5. Answer ALL QUESTIONS--there will be no penalty for errors.
6. Math survey is to take 25 minutes.

PART B: Mathematics survey

29.
$$\begin{array}{r} 406 \\ + 230 \\ \hline \end{array}$$

- a. 235
b. 600
c. 636
d. 646
e. 736

34.
$$\begin{array}{r} \frac{1}{4} \\ + \frac{1}{8} \\ \hline \end{array}$$

- a. $\frac{3}{4}$
b. $\frac{3}{8}$
c. $\frac{2}{12}$
d. $\frac{2}{32}$
e. none

30.
$$\begin{array}{r} 2370 \\ -1890 \\ \hline \end{array}$$

- a. 480
b. 840
c. 1480
d. 1580
e. 4800

35.
$$\begin{array}{r} 9 \\ - 5 \frac{1}{3} \\ \hline \end{array}$$

- a. $4 \frac{2}{3}$
b. $14 \frac{1}{3}$
c. $4 \frac{1}{3}$
d. $3 \frac{1}{3}$
e. $3 \frac{2}{3}$

31.
$$\begin{array}{r} 406 \\ \times 7 \\ \hline \end{array}$$

- a. 2802
b. 2836
c. 2842
d. 2912
e. 28042

36. $6 \times 2 \frac{2}{3}$

- a. 16
b. $8 \frac{2}{3}$
c. $12 \frac{2}{3}$
d. $16 \frac{2}{3}$
e. $24 \frac{2}{3}$

32. $5 \overline{) 535}$

- a. 17
b. 101
c. 107
d. 170
e. none

37. $\frac{3}{4} \div \frac{1}{4}$

- a. $\frac{3}{16}$
b. 3
c. $\frac{1}{2}$
d. $\frac{1}{3}$
e. none

33. Two million two hundred two is:

- a. 20,202
b. 200,202
c. 2,200,202
d. 2,000,202
e. none

38. Which is the largest number?

- a. $\frac{3}{4}$
b. $\frac{2}{3}$
c. $\frac{8}{9}$
d. $\frac{1}{20}$
e. $\frac{5}{8}$

39. Five-eighths is: a. 5-8
b. $\frac{8}{5}$
c. .58
d. 5.8
e. None
40. $.04 + .143 + .3706 =$
a. .3853
b. .5536
c. .5436
d. .4536
e. 5536
41.
$$\begin{array}{r} 32.3 \\ \times .035 \\ \hline \end{array}$$

a. 1130.5
b. 113.05
c. 11.305
d. 1.1305
e. .11305
42.
$$\begin{array}{r} .03 \overline{) .504} \\ \hline \end{array}$$

a. .507
b. 1.68
c. 16.8
d. 168
e. None
43. Which is the largest number?
a. .025
b. .098
c. .75
d. .015
44. Sixty-nine dollars and two cents is:
a. \$69.2¢
b. 69.02
c. \$69.02
d. \$69.02¢
e. None
45. Eighty-five percent is:
a. .85%
b. 85¢
c. 85%
d. 85°
e. None
46. 10% of .60 is:
a. 600
b. 50
c. 6
d. $\frac{1}{6}$
e. None
47.
$$\begin{array}{r} 5 \text{ yd. } 1 \text{ ft. } 7 \text{ in.} \\ - 3 \text{ yd. } 2 \text{ ft. } 9 \text{ in.} \\ \hline \end{array}$$

a. 8 yd. 3 ft. 16 in.
b. 2 yd. 1 ft. 10 in.
c. 2 yd. 1 ft. 2 in.
d. 1 yd. 1 ft. 10 in.
e. none
48. Find the area of a rectangle with a base of 10 inches and an altitude of 12 inches
a. 22 sq. in.
b. 44 sq. in.
c. 240 sq. in.
d. 120 sq. in.
e. None.
49. A box is 12 inches long, 5 inches wide, and 2 inches deep. What is its volume?
a. 60 cu. in.
b. 19 cu. in.
c. 240 cu. in.
d. 120 cu. in.
e. None
50. A square corner has how many degrees?
a. 45°
b. 90°
c. 180°
d. 360°
e. None.

51. $\sqrt{36}$ is:

- a. 13
- b. 6
- c. 169
- d. 18
- e. None

52. $5X = 45$
 $X = \underline{\quad}$

- a. 5
- b. 9
- c. 225
- d. 7
- e. None

53. If $r = 5$, $s = 6$, and $t = 4$, find the value of $x = r + s - t$

- a. 7
- b. 10
- c. 11
- d. 15
- e. None.