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A Study of Attitudes Toward Aviation Education

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CHAPTER I

INTRODUCTION AND STATEMENT OF PURPOSE

The present national emphasis placed on the teaching of science has brought about inquiries as to what part aviation education should play in this new scientific approach. These inquiries led toward the proposal that a study be made to find out the feeling of those people most directly concerned with this problem. A study was undertaken to determine how junior and senior high school students and their parents, teachers and administrators of the Lower Kittitas Valley and executives of the smaller aircraft industries felt about aviation as part of their science program.

The purpose of this research was to study the attitudes of the above-mentioned four groups of people who would be most concerned with an aviation program in the high school. This purpose entailed a careful study by use of questionnaires eliciting these attitudes. Furthermore, this study was made in the hope that it would contribute something to a relatively new dimension of the education of youth and would lead toward a better understanding of the problems facing the proponents of an aviation education program in high schools.

In conducting this research there was a natural limitation in that it was concerned only with the high schools of the lower Kittitas Valley. It was limited to polling high school teachers, administrators, junior and senior high school students and their parents, and a number of aircraft executives. The problem was further limited to aviation education and to flight instruction in the high school.

The study was divided into five parts: (1) the problem and definition of terms; (2) review of aviation education literature and its application to the problem; (3) procedure used in the preparation, the validation, the administration, and the tabulation of the questionnaires; (4) the results of the questionnaire; and (5) the summary, conclusions, and implications.

For many years aviation education has been of prime concern to various enthusiasts of flying. This growing enthusiasm has encouraged some school districts to add preliminary courses in aviation to their curriculum. The teachers in the elementary schools have integrated these aviation courses with other subjects. For instance, aviation courses are used as the focal point in a social studies or science program. This same idea could very easily be applied in the secondary schools with an emphasis placed on the technological and scientific aspects of aviation. Through integration much aviation could be taught with no drastic change in the present curriculums. Yet there are few high schools that have

seen the advantage of adding aviation education to their curriculums as a motivating factor. On the other hand, there are some enterprising high schools that have in their curriculums aviation education with flight training as a culminating activity.

The secondary schools of America can no longer ignore the vital role that aviation education must play in today's curriculum. Rather, education, at all levels, must meet the challenge that the airplane has presented by making it possible to travel great distances in a relatively short time. Future generations will not only use the atmosphere surrounding the earth, as well as space, for a playground, but they will eventually use the air and space above as a means of livelihood. Our youth must be given an opportunity to know and understand a world in which air travel is becoming of paramount importance.

Because aviation plays such a vital role in today's living pattern it would seem that the parents of modern high school youth as well as students would be most concerned with keeping abreast of the import aviation has on society. This point of view led to the general hypotheses: (1) that parents are favorable toward an aviation program with the teaching of flight instruction in their high schools; (2) that junior and senior high school students are enthusiastic about taking aviation education and flight instruction in high school; (3) that executives of aircraft companies are willing to sponsor an aviation program in the high school;

(4) that teachers and administrators are favorably inclined toward an aviation program; (5) that, based on studies of various high school curriculums, flight instruction is a desirable addition to the aviation program in high school; and (6) that the public is generally interested in an aviation program because they are aware of the importance of the airplane as one of the most modern tools of civilization.

It was decided that the best method to resolve these hypotheses was the normative-survey method by using questionnaires. This study purported to be a survey of attitudes and not a justification of a program.

Before presenting the second part of this study, the review of literature, it is necessary to define certain terms which will be used in a particular way to fit in with the purposes of this study. These definitions will apply wherever the words are used in the report.

Aviation education. Aviation education is that branch of general education concerned with communicating knowledge, skills and attitudes about aviation and its impact upon society. In this report aviation education will be formal education or that education which is organized in high school curriculums.

Flight instruction. This term is used to include orientation flights and any subsequent flights that would be given in the process of teaching the actual manipulation of the controls of an airplane by the student.

CHAPTER II

REVIEW OF LITERATURE

In the review of aviation literature it was found that theories concerning aviation education with flight instruction as the ultimate goal were founded on three basic premises: first, that there is a definite need for continued and concentrated aviation education in the world of today; second, that this need is being only partially met by private concerns, clubs, and an international organization; and third, that schools integrating aviation education in their curriculums provide enough aviation background to form a basis for flight instruction in secondary schools.

Need for Aviation Education and Aeronautical Techniques

The author of this report believed that with science making such tremendous strides toward living in outer space there is a definite need for more aviation education for the young men and women who are preparing to make a living in an air-minded world.

This belief is substantiated by many people. Congressmen have been working hard to make America and the world more conscious of peacetime needs for aviation. Educators, aviation officials, federal

and state authorities have long realized the importance of the training of youth in aviation.

Congressman Henry J. Latham introduced a bill to the House on April 2, 1951, whereby the Civil Aeronautics Association would be authorized to aid and cooperate with state educational and aviation agencies in establishing an aviation education program in all public schools. Why was Mr. Latham, Congressman from the 3rd District of New York, so interested in such a bill? Congressman Latham believes that the lack of training of youth in aviation is one of the crucial problems which America faces. The airplane has revolutionized the way of life in all civilized countries in the world. Acknowledging this, Russia long ago began rearing an air-minded generation, grounded in the fundamentals of aviation from their earliest years. If America is to keep its air supremacy, its training of youth must be made an integral part of the public school system. Latham believes that the entire younger generation should be given a background in aviation. These boys and girls should be trained in basic aeronautical skills.[1]

Everyday, in one way or another, teachers bring the world into their classrooms. Television has made even the youngest child aware of a world that many adults did not know in their childhood and have

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[1]Henry J. Latham, "Give America's Youth Aviation Education," Flying, XLV (March, 1952), 17.

difficulty understanding today. With the world awareness that the boy and girl of today have, it is the duty of education to meet the growing challenge of understanding the scientific development and moral obligations of a rapidly developing space age. Despite the fact that countries are sending objects into space and that man will soon follow, there remains the fact that man still lives on earth. The young generation of today need to acquire the ability to live with their fellowmen in this one world. They need to know what new powers are being invented and to what use these powers are being put. They need to know how to wisely use them, and they need a willingness to develop them for peaceful purposes and the betterment of mankind throughout the world.

The writer agrees with Mr. Caldwell, Assistant Commissioner for International Education, who has stated that American schools are:

> . . . designed primarily to serve local and state needs, under state and community control. They preserve our traditions; they serve local human needs; they are a principal architect of the American nation.
>
> But today we face complex new needs resulting from rapid scientific development, social progress, and historical changes.[2]

Caldwell further asserts that the schools need to re-orient their school curriculums to help Americans live more effectively under changing conditions and pressures. Americans are facing great

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[2]Oliver J. Caldwell, "The World in Our Classrooms," NEA Journal, XLVII (February, 1958), 92.

opportunities in the field of nuclear power and in space explorations. Education must help them learn to live, to work, and possibly to fight on these frontiers. There is a need for a balanced development of education directed toward approved national objectives.[3]

Even as Caldwell feels that the dynamic living of today needs a change in our school curriculums, so, too, did Latham when he stated that Aviation must be considered as a force whose impact is felt in every area of human enterprise. Aviation affects the daily lives of everyone in America and in many parts of the world. Its social and educational implications must not be neglected if young Americans are to gain an integrated understanding of the world in which they live.[4]

There are those who believe that a planned program of aviation education and techniques of aeronautics would help arouse an interest in the world which would lead the student to explore other possibilities than just those offered under aviation. Latham suggests that aviation education must be woven into the fabric of the school curriculum --into history, civics, science, politics, literature, and cultural studies. Without such integration, subjects taught and studied are neither realistic nor meaningful in a world revolutionized by air transport and travel.[5]

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[3]Ibid., pp. 93-94.

[4]Latham, op. cit., p. 19.

[5]Ibid., p. 19.

After World War II the government felt so strongly that flying was important in the everyday lives of its citizens that it included flight training as part of its Public Law 346, popularly known as the GI Bill of Rights.[6] Even under this program the student was encouraged to plan his career so that flight training and aeronautical techniques could help him in any line of work he chose. There is room for airline pilots both as passenger pilots and cargo pilots, but young people will find a pilot's license very useful in connection with ground jobs, both in and out of the aviation field. Many civilian positions require flying skills.[7]

Furthermore, it is a matter of fact that aviation's peacetime job is continually growing. The use of aircraft has brought five hundred new job classifications into being. Many hundreds more are found in fields relating to aviation. Airlines employ a half million people, while aircraft manufacturers and related industries are employing a million or more people. According to Mr. Latham public school education cannot ignore this rapidly growing field. Pilots, crewmen and technicians are the more common classifications which must be filled with ever increasing numbers of young people. But there is also need for aeronautical

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[6]L. S. Willis, "Flight Training and the GI Bill," Flying, XXXIX (August, 1946), 17-18.

[7]Ibid., pp. 102-104.

engineers, aeronautical administrators, electronics specialists, those concerned with avaiation medicine and law and many other experts.[8]

Latham substantiates Willis's statement that even those who will not work directly in aviation jobs must have a working knowledge of the subject in order to take advantage of the changes brought about by aviation in every modern business.[9]

Through reading there seemed to be many individuals interested in meeting the needs of the young people of America. However, in reading and in contact with education groups, it was noted that even with the high degree of interest on the part of many people there was comparatively little aviation education reaching the multitudes of young people in America.

Because the need for more aviation education was felt in the early twentieth century, professional colleges of engineering introduced aviation education into their curriculums. In 1925 two high schools included in their program aeronautical science and actual flight training. For many years the Federal Government has long been interested in promoting aviation education. It has provided, and still provides, much material to all interested schools, clubs, and flight schools. These

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[8]Latham, op. cit., p. 18.

[9]Ibid., p. 18.

materials are aids for planning aviation courses.

In 1939, when the Civilian Pilot Training Act was passed, there was a real acceleration to the aviation program in many schools. There were 195 high schools giving instruction in flight, navigation, meteorology, power plants, aircraft structures, aircraft instruments, and aerodynamics. When government support was withdrawn, this program folded, but not before it had turned out 500,000 civilian airmen.[10] This Act provided a good backbone of pilots for the American as well as the British Air Force.

In 1941, a women's college, Stephens College in Columbia, Missouri, introduced aviation as a specific program into its curriculum. It was so successful that it has been continued. Today the purpose of the aviation studies at Stephens College is to develop attitudes based on the realities of the Air Age because today's students will participate in a society using the airplane as a dominating force for world unity. Although this CAA approved flight program is keyed to the private pilot and encourages the family use of the airplane, many Stephens students have jobs of various types in airline offices from coast to coast. They fill positions as reservations, control, passenger or travel agents. They also have the basic training for stewardess work. Many are employed in positions where their private pilot's license is used.[11]

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[10]Ibid., pp. 54-56.

[11]Peggy Phillips, "Readin', Writin' and RPM's," Flying, XLVI (October, 1953), 21, 48.

All over America flying schools enroll high school youngsters for flight training. These boys and girls pay or have their parents pay the cost of such training; consequently, not a great number can enroll in such a course. Walter Nanni, a Chula Vista, California, contractor, realizes that this problem of cost discourages many prospective pilots. He believes that youngsters of high school age should have the opportunity of learning to fly. He has said that:

> Flying should be as natural for youngsters as swimming or driving the family car. . . .most of today's civilian flying is being done by the wrong people . . .an older age group which can afford it.[12]

Nanni, with P. E. Killion, a high school principal and private pilot, mapped out an idea for a flying club for prep agers enrolled in nearby high schools. The club has some unique rules and the least expensive flying to be found anywhere. Members of this unique club must be of high school age and cannot be employed full-time. They must have the permission of their parents, but once enrolled, members can solo and obtain their private license for a total of approximately $87.50.

This club idea is fine when it is supported by such civic-minded men as Nanni, but it still doesn't reach as many youngsters

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[12]Tom Stanberry, "The Lucky Kids of Chula Vista," Flying, XLVI (January, 1953), pp. 15, 46-47.

as he would like to see in the air. Most of their members have been youngsters who would not be flying if it were not for the club.[13]

Nanni's club is an attempt to fill the gap of flight training through a community or civic organization. These agencies may become interested and concerned with aviation, but would find it difficult to bring youth the full understanding of the concepts that would give them a true perspective of aviation and develop an attitude of one-worldness. Since 1949 the Civil Air Patrol (CAP) has had a "CAP High School Coordinated Program." This program will place the CAP Aviation Study Manual in the secondary schools as part of the curriculum. Until 1952 the CAP had placed this program in less than 250 high schools of the United States and Territories. Yet, here is an opportunity for high schools to build young air citizenry with the help of an organization which has international scope.[14]

The Aviation Education Division of the CAA and the CAP have done much toward setting up curriculums for the public schools. But their function is purely advisory. The success of their recommendations is precariously dependent on the interest, initiative, and financial resources of the individual community.[15]

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[13]Ibid., pp. 46-47.

[14]General Carl A. Spaatz, USAF (Ret.), "A Lost Air Policy," Flying, XLV (May, 1952), 10, 48.

[15]Latham, op. cit., pp. 17-18.

Basis for Flight Instruction Provided in Many Curriculums.

There are many schools scattered across the United States that, from elementary school through high school, provide enough aviation background to form a basis for flight instruction in the secondary schools. There are even schools which provide the flight instruction. Clover Park, Tacoma, Washington, is the most notable example at the present time. There are other states and other schools that offer courses in aviation from kindergarten through high school. These schools integrate many of their aviation subjects with the established subjects of the curriculum.

Mr. Willis Brown asserts that many people are interested in promoting the teaching of aviation in high schools but their opinions vary as to the degree of such training. Some educators think that the teaching of aviation should be limited to the academic courses that are taught in the area of ground school courses. Teachers and administrators should realize that the interests of youth go far beyond the principle of flight. There is a whole new range of youth interest which includes weather, biology of flight, and even a realistic evaluation of how far along we are toward space flight. Since educators rightly place emphasis on meeting the needs of youth, they should realize how important it is to see what can be done in the field of aviation to meet these needs.[16]

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[16]Willis C. Brown, "The United States Office of Education and Aviation Education," Education, LXXVI (September, 1955), 61.

Fred Miner[17] thinks that aviation education must, without delay, find a place in an expanded high school curriculum. He states that much aviation education effort at the secondary level has failed because the approach was not geared to the students' age and interest level.

Students who have learned to discuss aviation intelligently and to identify aircraft as eighth grade students will not be satisfied to have high school mathematics and science teachers attempt brief, superficial discussions with them regarding problems of jet flight, navigation, and meteorology. Aviation education at the secondary school level must be more than enriched general education. It must be aviation education, technical and specific enough to satisfy the interests of high school boys and girls and be a challenge to their maximum capabilities.

With these points of view in mind, Mr. Miner worked very closely with the Clover Park High School in Tacoma, Washington, in developing an aviation education program. Clover Park High School now has a successful program of aviation education with flight training as the culmination. This school offers a flight training course from which a student can graduate with a commercial pilot's license. Clover Park also offers a companion course in Aircraft and Engine Mechanics

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[17]Fred V. Miner, "High School Aviation Education and the Aviation Education Program in the Clover Park Schools, Tacoma, Washington," Education, LXXVI (September, 1955), 56-57.

from which a student may graduate with a Civil Aeronautics Certificate. With these two complete courses in aviation education the school feels that the students who have taken these courses are qualified to fill responsible positions in an air-minded world. Many of their graduates have succeeded in aircraft industrial jobs; many have become commercial airlines pilots, and some have come back to teach in the vocational department of Clover Park High School.

Curriculums of various schools are affected by the attitudes of the public or the administrators or the teachers. Mr. Arthur Bloom, Principal of the Pleasant Hill High School in Concord, California, believes that academic courses in aviation should be taught. He believes that if flight instructions are to be offered they should only include a single orientation flight. He feels that the actual instructions should be left to organizations such as the Civil Air Patrol or to the commercial schools.[18]

On the other hand, Oroville Union High School of Oroville, California, requested the state department to assist them in planning the aviation course and flight experiences for their students. Since this initial step was taken by Oroville, other California schools have included a general high school course on aviation in their curriculums

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[18]Arthur Bloom, in a personal letter to the writer. Pleasantville, California, August 16, 1956.

with flight experience programs.[19]

In considering the place that aviation education should have in their curriculum the Texas public schools relied on the recommendation of the November, 1944, Conference on Aviation Education for Texas. The Texas conference stated that "Pre-flight aeronautics would serve as a prerequisite for such courses as physics better than physics now serves as a prerequisite for aeronautics."[20] These recommendations were made by members of the conference who believed that the responsibility for aviation education rests on teachers at all grade levels and in all subject fields. They further believed that the courses of the regular curriculum may and should be integrated with the information necessary for children living at a time when air travel is a major influence on many phases of life. Because of this strong belief in aviation education, the Texas State Department states that all grades should have aviation education as part of their instruction. In the high schools, at the eleventh and twelfth grades, in addition to general education in aviation a one-year course in aeronautics is offered as a more technical and vocational approach. Those students enrolled in the aeronautical course must also have at least four hours of flight experience.

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[19]American Association of School Administrators, Aviation Education (A report on Aviation Education Workshops. Washington, D.C.: American Council on Education, 1949), p. 20.

[20]State Department of Education, Aviation Education in Texas Public Schools, Bulletin No. 448, 1944-1945, 11.

The Texas schools based their inclusion of aviation education in their curriculums on the conviction that youth, in adjusting himself to an era so different from the era in which his parents have been educated, finds that many of his problems are related to changes which have been brought about by aviation. It is the school's responsibility to help this adjustment. Although it is desirable and necessary to incorporate appropriate aviation materials into all subjects at all grade levels, it is equally important to provide a separate course in aeronautics which should be organized for eleventh and twelfth grade students.[21]

Many other schools have added aviation courses to their high school curriculums because they believe that the only way an airplane can be used to its fullest advantage is by teaching young people the proper usage of this machine through supervised, well planned courses. The Philip Schuyler Senior High School in Albany, New York, offers two aviation courses as part of their curriculum. Aviation I is of a general introductory nature with emphasis placed on the social, economic, and political implications of the airplane in our daily life. Aviation II is a technical study of the scientific and mathematical aspects of aviation.[22]

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[21] Ibid., p. 22.

[22] American Association of School Administrators, op. cit., p. 20.

The Aviation department of the Marion County Vocational School, Ocala, Florida, offers to its students pilot training and mechanic training to the Civil Aeronautics Administration's certificates. In addition, opportunity for glider training is offered to early adolescents, aged fourteen.[23]

The state of Oklahoma has done a great deal for teaching toward better world understanding and an understanding of aviation through its flying classroom which makes the world a school room. Field trips by air are proposed to take the student beyond the confines of his own community. The flying classroom is planned to encourage student air trips regionally, nationally, and internationally.

Oklahoma encourages the use of its Air Laboratory as part of the aviation education of its high school or college students. The use of the Air Laboratory in the course is unique in that it is an attempt to correlate regular classroom activities with the use of the airplane. The airplane provides perspective for the correlation of the various academic subjects into one composite living situation. The subject matter fields include history, government, geography, geology, biology, general science, and art as well as social and economic problems.[24]

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[23]Ibid., p. 23.

[24]Harold D. Weatherly, "The Air Laboratory," Aviation Loose Leaf Series, Oklahoma City, Oklahoma: Oklahoma Aviation Commission.

Teacher-training programs in aviation education are growing in number all over the nation. Since 1946 more and more state departments of education are providing workshop programs, materials and classes for teachers. Many of these programs include orientation flights, visits to airports, weather bureaus, and air bases. One major purpose of this orientation program for teachers is to produce curriculum guides in air-age education so that teachers can use more effectively the information they acquire about aviation through reading and study.[25] Many state departments of education are joining with other state agencies in their efforts to develop an interest in aviation education.[26]

It would seem that aviation education throughout the United States has been spasmodic and without direction, but aviation education on a national level is not being promoted blindly and without plan. In 1949 the Aviation Education Committee of the American Association of Colleges for Teacher Education (AACTE) listed fourteen desired learnings, understandings and realizations concerning the airplane and its relationship to education. These fourteen points constitute minimum suggested knowledge for all teachers living in the air world. The following are desired learnings of aviation education as the AACTE

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[25]American Association of School Administrators, op. cit., pp. 26-31.

[26]Ibid., pp. 32-36.

committee perceives them:

1. An adequate reading and speaking vocabulary of aviation.
2. (Knowledge of) The importance of weather and climate to successful aviation.
3. A general knowledge and understanding of airplane structure.
4. A general knowledge and understanding of the simple scientific principles of flight.
5. An understanding of the place of aviation in peace and war.
6. An understanding of the effects of air transportation on various levels of international relationships.
7. An introduction to the social, economic, and political implications of current and future aviation development.
8. An appreciation of the services rendered by airports and their associated personnel.
9. Familiarity with existing and needed basic governmental services, regulations, relationships in aviation.
10. A knowledge of available aviation education resources in materials, personnel, and equipment for instructional purposes.
11. The know-how for organizing units of aviation education and providing resulting learning experience for children through student or directed teaching.
12. A realization of the growing interdependence of people through aviation.
13. An understanding of problems--political, economic, international, and social--that aviation has created and the institutions society has established to solve these problems.
14. A realization of how the airplane has changed geographic relationships--particularly in terms of mankind's concepts of time, place, and distance and mankind's attitudes toward waterways, land masses, and land and water barriers.[27]

There is general agreement that it is only through the nation's teachers using effective methods and materials with active cooperation of air-minded, understanding lay adults that the schools can bring aviation education with all its implications to the majority of America's youth.

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[27]Civil Air Patrol, Aviation Education in Civil Air Patrol (Pamphlet No. 14. Washington, D. C.: National Headquarters Civil Air Patrol, 1958).

CHAPTER III

PROCEDURE

In describing the procedure a more complete orientation can be gained by taking the writer's original ideas concerning aviation education in their embryo form and following through to the specific procedures finally taken.

At a time when the whole world is science-conscious and space-minded it seemed imperative that study be made of the general picture of aviation education in our schools. Through broad reading and investigation it was found that in viewing the aviation education structure from kindergarten through high school the primary and intermediate grades covered some of the rudiments of aviation even though there were no scheduled or definite programs for aviation education.

There was evidence that the secondary schools were lacking in the teaching of basic theories of aviation science. Even the science courses did not include many of the aspects concerned with aviation which could quite naturally be expected in such courses. This apparent need in the secondary schools led to the question of why the junior and senior high schools did not offer more specific concepts in aviation

education.

The problem of study became one of finding out why more aviation education per se was not offered in high schools. It was hypothesized that attitudes toward aviation and aviation education were important factors in determining the extent of curriculum development in aviation. To determine the attitudes of those most concerned with this problem it became apparent that there were only certain people who would be interested. These people were to be categorically grouped and are designated later. Because of the scope of the problem an area limitation had to be designated. With these limitations determined, a scaling of attitudes for these reference groups was to be ascertained by a questionnaire geared to each grouping.

Through many years of working with aviation and in recent years working with young people in the field of aviation education through Civil Air Patrol and public education, it became apparent to the researcher that more and more stress was being placed on aviation education from a national level through these agencies. In working with the young people, statements were overheard which led to the belief that little or nothing was done in aviation education in the secondary schools in central Washington. These boys and girls wondered why more of the scientific principles of aviation were not included in their curriculums. A suggestion to help in answering this question seemed

to be that a unit development for the study of aviation in high schools might be helpful in encouraging junior and senior high school teachers to include various principles of aviation in their class work. An investigation was made to find if such courses were available at the present time.

In making the investigation to determine the availability of published units for aviation education it was found that many courses of study from many states offered complete units on aviation education from kindergarten through high school. Some of these courses of study, such as the Texas State Course of Study, the Kentucky State Course of Study, and the Oklahoma State Aviation Commission Course of Study, even showed how many aviation theories could be integrated with other subjects. They pointed out how such integration would aid in the better understanding of many of the basic scientific principles which are an integral part of all scientific theories.

When it was found that there were sufficient courses of study and some units available for use, it was decided that there must be another reason for not including aviation education in high schools. With this problem in mind the decision was made that an investigation of attitudes in one county would most likely reveal some reasons for not including aviation education in high school curriculums. The area chosen for this investigation was the lower Kittitas Valley.

Since this study was concerned with the problem of aviation education in secondary schools it naturally limited the sample of people involved in the investigation. Only those persons thought to be directly concerned with this problem were contacted. The people most directly concerned were the school administrators and teachers, junior and senior high school students, and their parents. Aircraft companies were to be contacted because of the help they might be interested in offering toward any proposed aviation program.

After some preliminary investigations and inquiries it was found that the best way to contact those concerned with this problem was through the use of questionnaires. Before any questionnaires were begun the problem was explained to a graduate study class in research methods. A form covering four groups--students, parents, teachers, and aircraft administrators--was passed out to each member of the class. (Appendix A) Verbal and written instructions directed students to write questions or statements in each section which the representative group would be interested in having answered if an aviation program was initiated in the high school. The questions and statements submitted by this class were carefully sifted and analyzed to find those which occurred most often. In the final analysis of this material those questions and statements were chosen which fit the specific problem of attitudes towards aviation education in public schools.

Added to these statements and questions of the graduate students were many other statements concerning aviation education which were collected from other interested groups and aviation education literature. Some of the statements were constructed from the writer's background concerning people's attitudes towards aviation education and flight instruction. Questions were tabulated into four group headings; (1) questions for parents, (2) questions for junior and senior high school students, (3) questions for teachers and administrators, and (4) questions for aircraft executives.

The next concern was the best method of presenting the chosen questions and statements. A form, simple and concise, with brief directions and a check type answer, was chosen to fill the need. The questions were to be arranged with statements eliciting various intensities of attitudes under each question. These statements were to be graded from most in favor to those least in favor following some general practices in the scaling of attitudes.

The questionnaire was prepared after all the statements and questions were re-analyzed and duplicate, irrelevant, and obviously ambiguous ones eliminated. The questions were so arranged that five choices of statements reflected the intensity of attitudes ranging from those most in favor to those least in favor of aviation education. Questionnaires were written with ten questions for parents, eight for

students, five for teachers and administrators, and three for aircraft executives. These questionnaires were mimeographed and presented to a large college senior class for further analysis.

This class judged the statements and appropriateness of statements for their position on the continuum and for any further ambiguity. They judged whether the questions and their accompanying statements would have the same word meaning for interviewees as they had for the investigator. This was done during class sessions in which the questionnaires were read and discussed. The first point of discussion discovered discrepancies in word meaning. When the majority of the class agreed that there was a question as to the definition of a word that word or phrase was changed to one that would give a common interpretation. The next point of discussion covered the definition of questions and statements. This was done until the majority of students agreed on the same interpretation of the questions and accompanying statements provided to elicit attitudes.

After this analysis was completed the questions were arranged in the order of importance, as determined by steps that would need to be taken to initiate an aviation education program, and then mimeographed. The first consideration was for the importance of aviation in education, followed by statements on the attitudes of the individual toward participation. These questionnaires (Appendix B, C, D, and E) were grouped one for senior high school teachers and administrators, one for junior

and senior high school students, one for parents of these students, and one for aircraft administrators.

The student questionnaires were administered to junior and senior students in Thorp High School, Kittitas High School, and Ellensburg High School. The parent questionnaires were sent home with these junior and senior high school students and brought back to be collected later from the high school office. Questionnaires were distributed to the high school faculties of these three high schools and returned to the office where they were picked up by the researcher. The questionnaires for aircraft executives, in the majority, were sent to the manufacturers of small aircraft.

When the questionnaires were collected each item on each of the questionnaires was tabulated (see Tabulation Table, Appendix F) according to the question and the grouping. After the tabulations were completed the raw figures were converted to percentages for each question so that results could be presented more meaningfully in percentages. Percentages were derived by taking the total number of checked statements for each question and dividing that number by the total number of returns for that question. This percentage scale was applied to each question and the results were tabulated for presentation in tabular form. These tables and explanations are included in Chapter IV--Results.

CHAPTER IV

RESULTS

This study of attitudes toward aviation education in high schools was limited to four groups of people considered to be those most concerned with this problem at the present time. The problem was limited to the three high schools of the lower Kittitas Valley. To gain the best results a questionnaire was used to define the attitudes of high school teachers, junior and senior students and their parents toward aviation education in their schools.

There was a hundred per cent return on questionnaires administered to students and those sent to faculties. There was a fifty-seven per cent return from those sent to aircraft executives and a twenty-nine per cent return from parents. The returns for students and school personnel were obviously adequate to reliably show their attitudes toward aviation education. In an absolute sense attitudes of aircraft executives and parents can only be shown for those returning the questionnaires, but it can probably be assumed that these would be the attitudes of those sufficiently concerned to play any major role, in a positive or negative sense, in initiating aviation education programs.

Comparisons were made among the various reference groups where the question applied to all groups. The difference of attitude was computed by percentages and analyzed as to degree of difference from these percentages.

Results are presented on tables with a general analysis below each table. The over-all tabulation shows that the students are highly in favor of aviation education with flight training being added to their curriculums either as part of their regular school hours or as an out-of-school activity. The majority of parents responding, although not quite so enthusiastic as the students, show a definite interest in having such a program initiated in their schools. The aircraft executives were definitely interested in having such an aviation program introduced in the schools. On the other hand the administrators and teachers showed a definite lack of interest in the addition of any aviation subjects to their curriculums.

By studying the accompanying tables the material becomes more meaningful for the reader. The tables play a predominant role since they are made up from a direct analysis of responses made to questions asked in the questionnaires. A thorough study of the tabulated results may help to resolve questions that a reader may have concerning attitudes of each of the reference groups toward aviation education with flight training in the high school.

The answers to the question presented on Table I indicate that the majority of students would welcome courses in aviation, including flight instruction, as a part of their school curriculum, but many teachers expressed a negativism toward such an action. Footnotes added to many of the teachers' questionnaires explain this feeling of opposition toward aviation subjects as due to the fact that their present curriculums are very overcrowded with other subjects and they restated that they felt that aviation was not an important part of education. Many parents who showed a positive interest in the program wrote footnotes expressing a concern about an overcrowded curriculum.

To the extent that one can generalize from a small number, the executives of aircraft manufacturing companies showed that they were interested in aviation as a part of the whole school program.

According to Table II it would seem that the majority of students as well as parents, although to a lesser degree, would like to see an aviation program established in the high school. The parents would be willing to assist such a program, but the majority of teachers indicated more neutrality toward all parts of this program. The teachers' lack of interest was due in large part to the feeling that their curriculums were already overcrowded with "unessentials" as a few noted in footnotes on their questionnaires.

TABLE I

PER CENT OF STUDENTS, TEACHERS, AND AIRCRAFT EXECUTIVES SHOWING DIFFERENT ATTITUDES TOWARD THE QUESTION:

TO WHAT EXTENT DO YOU THINK AVIATION IS AN IMPORTANT ASPECT IN EDUCATION

S*	T	P	E	
2	2		0	1. Courses should be offered from kindergarten through high school--finally including flight instruction.
58	13		25	2. Courses in aviation should be offered in high school, including flight instruction.
0	13		50	3. Courses in aviation should be offered from kindergarten through high school.
25	31		25	4. Courses in aviation should be offered in high school.
15	41		0	5. Aviation is not important in education.
100	100		100	
N 343	39		4	

* The abbreviations S (students), T (teachers), P (parents), and E (aircraft industry executives) are used to designate column headings in this and subsequent tables in this chapter for conservation of space. N(number) is used to designate the total number of returns.

TABLE II

PER CENT OF STUDENTS, TEACHERS, AND PARENTS SHOWING DIFFERENT ATTITUDES TOWARD THE QUESTION:

WHICH OF THE FOLLOWING STATEMENTS BEST EXPRESS YOUR FEELING SHOULD AN AVIATION EDUCATIONAL PROGRAM BE INTRODUCED IN YOUR SCHOOL AND IF IT WERE TO INCLUDE A FLIGHT INSTRUCTIONAL PROGRAM?

S	T	P	E	
33	6	7		1. I would be happy to have such a program.
54	23	51		2. I would be pleased to have the program available for those interested. I would assist the program.
11	43	12		3. I would leave it to the school administrators to decide but would work impartially with such a program.
1	26	19		4. I would not like to have the program introduced.
1	2	11		5. I would openly oppose such a move.
100	100	100		
N 352	35	98		

The high enthusiasm of the students for an active program indicates great interest in the future of aviation education, assuming consistency of interest as these students enter the post school world.

Although answers to other questions indicate that parents are interested in an aeronautical program with flight training, Table III shows that parents lack confidence in themselves to actively help by initiating such a program. Here they are more neutral and want to leave the activation of the program to their school administrators who know more about curriculum planning.

In view of the more than seventy per cent of parents as indicated in Table IV, who are willing to pay at least part of the cost of flight instruction, it would seem that there is considerable interest in flight training in high school. Eight per cent of this seventy were willing to pay all expenses of flight instruction for either son or daughter; twenty-three per cent would willingly pay part of such instruction; twenty-nine per cent would assume any nominal costs.

There appears to be significantly more enthusiasm to sons taking such training than daughters, but girls have not been totally excluded in their parents' thinking about flight training. Because of the wording of the statements for this question the parents had no choice of answer for paying part of the cost for both son and daughter. Many parents added the word daughter to statement 2 and marked it as their

TABLE III

PER CENT OF PARENTS SHOWING DIFFERENT ATTITUDES TO THE QUESTION:

WHICH OF THE FOLLOWING STATEMENTS BEST EXPRESSES YOUR FEELINGS IF THE ADMINISTRATORS OF YOUR SCHOOL DISTRICT WERE TO ASK YOU TO HELP INITIATE SUCH A PROGRAM INTO THE SCHOOL?

S	T	P	E	
		13		1. I would be very glad to help.
		11		2. I would help a little to get it started.
		47		3. I would leave it to those who know about such things.
		11		4. I would be slightly opposed.
		18		5. I would openly oppose such a program.
		100		
N		98		

TABLE IV

PER CENT OF PARENTS SHOWING DIFFERENT ATTITUDES TO THE QUESTION:

WHICH OF THE FOLLOWING STATEMENTS BEST EXPRESSES YOUR THINKING AS TO HOW SUCH A PROGRAM SHOULD BE FINANCED?

S	T	P	E	
		8		1. I would be willing to pay all of the cost of flight instruction for my son or daughter.
		23		2. I would be willing to pay part of the cost of flight instruction for my son.
		6		3. I would be willing to pay part of the cost of flight instruction for my son.
		29		4. I would agree to assume any nominal costs that might be necessary in a flight program.
		34		5. I would not wish to pay any part of the cost of flight instruction.
		100		
N		92		

choice, indicating that they wished their daughters to participate in an aviation program on an equal basis with their sons.

Table V indicates that student interest is great. Over 75 per cent of them would enter the aviation program to some extent. Nearly fifty per cent of the students would participate in the flight program, planning to complete the course and get a private pilot's license.

Although parents' enthusiasm is not so great, they expressed enough interest to warrant such a program. The larger number were interested in having their children enter the academic part of the program. However, over 30 per cent seemed to approve of flight instruction. The 16 per cent who approve of instruction through to the pilot's license is quite significant.

One realizes that it is very difficult to ascertain before such a program has been activated what a person would do, but, from the response of the parents, Table VI shows that the majority would be interested in a flight program. Sixteen per cent of the parents would be actively helpful. One could expect some active opposition since thirteen per cent expressed that they would openly oppose the program.

Table VII shows that after the program has been in progress for some time, most parents would not take an active interest in the program. These parents expressed the feeling that they would do little urging as to participation or no participation in an activated flight

TABLE V

PER CENT OF STUDENTS AND PARENTS SHOWING DIFFERENT ATTITUDES TO THE QUESTION:

WHICH OF THE FOLLOWING STATEMENTS BEST EXPRESSES YOUR FEELINGS ABOUT HOW FAR A CHILD SHOULD BE PERMITTED TO CONTINUE IN SUCH A PROGRAM?

S	T	P	E	
48		16		1. Complete the course and get private pilot's license.
11		15		2. Continue the course through solo stage.
5		3		3. Continue to solo stage.
15		45		4. Finish aviation courses.
21		21		5. Not enter or participate.
100		100		
N 257		98		

TABLE VI

PER CENT OF PARENTS SHOWING DIFFERENT ATTITUDES TO THE QUESTION:

WHICH OF THE FOLLOWING STATEMENTS WOULD BEST EXPRESS YOUR FEELINGS AFTER A FLIGHT PROGRAM WAS INITIATED INTO YOUR SCHOOL?

S	T	P	E	
		16		1. I would stand back of and work for such a program.
		52		2. I would be interested in and ask questions about the progress of the program.
		16		3. I would let it proceed but take no interest in it.
		3		4. I would look for and express faults about the program.
		13		5. I would openly oppose the program.
		100		
N		89		

TABLE VII

PER CENT OF PARENTS SHOWING DIFFERENT ATTITUDES TO THE QUESTION:

WHICH OF THE FOLLOWING WOULD BEST EXPRESS YOUR FEELINGS AFTER SUCH A PROGRAM HAS BEEN IN PROGRESS FOR SOME TIME AND HAS PROVEN ITSELF?

S	T	P	E	
		17		1. I would urge my child to enter the program.
		40		2. I would talk about it but not urge the program.
		25		3. I would let my child decide without my viewpoint.
		9		4. I would try to discourage the program.
		9		5. I would forbid my child to enter this program.
		100		
N		103		

program. However, it is believed that once a student enrolled in the aviation program and was enthusiastic about its progress he would talk about it at home with his parents. In return, they would be concerned or interested and become involved more than their questionnaire replies indicate.

It would appear from the results shown in Table VIII and from inferences drawn from the answers to other questions that more young people see the value of this youthful aviation industry as a useful part of their adult lives than do the adults of this generation. These young people expressed the feeling that they considered aviation and air travel of some form an essential part of their future. Nearly forty per cent of the students could see a use for aviation in their chosen field of work. And over sixty-five per cent were sure they could use it either for business or for pleasure. They seem ready and anxious to make the best possible use of this relatively new form of transportation.

Table IX indicates that the majority of parents and students think that aviation subjects should be offered during school hours and flight instruction be given in out-of-school hours. The vast majority of teachers felt strongly that if flight instruction were initiated it should be confined to out-of-school time. Nearly half of the teachers felt that the academic aspects of aviation could be taught during regular school hours. The majority preferred that flight training

TABLE VIII

PER CENT OF STUDENTS SHOWING DIFFERENT ATTITUDES TO THE QUESTION:

TO WHAT EXTENT WOULD YOU BE ABLE TO USE THE KNOWLEDGE OF AVIATION THAT YOU WOULD ACQUIRE IN HIGH SCHOOL?

S	T	P	E	
8				1. I would use it extensively because I intend to make aviation a career.
25				2. I believe I would be able to use the knowledge extensively in any business.
32				3. It would be a popular hobby for me.
22				4. I could use it, but it would not be important to me.
13				5. It will be of no use to me.
100				

N 361

TABLE IX

PER CENT OF STUDENTS, TEACHERS, AND PARENTS SHOWING DIFFERENT ATTITUDES TO THE QUESTION:

WHICH OF THE FOLLOWING STATEMENTS BEST EXPRESSES YOUR THINKING AS TO THE BEST TIME TO TEACH A FLIGHT PROGRAM IN HIGH SCHOOL?

S	T	P	E	
31	9	21		1. During regular school hours.
50	36	37		2. Aviation subjects during school hours and flight instruction out-of-school hours.
4	0	1		3. Flight instruction during school hours and aviation subjects during out-of-school hours.
12	12	16		4. Aviation subjects and flight instruction should be taught during out-of-school hours.
3	43	25		5. The flight program should not be connected with the school.
100	100	100		
N 352	42	98		

have no connection with the schools. Parents, who are likely to be the same generation as the teachers, indicate a greater interest in having flight instruction during regular school hours.

Table X shows that there was a majority agreement that the aviation courses should be an elective to both junior and senior high school boys and girls.

By comparison, Table XI indicates that more parents have handled the controls of an aircraft than have their children, but more students have handled controls than have teachers. On the other hand, there was a greater per cent of teachers who had been up in aircraft. It seems that although teachers have been introduced to and traveled by airlines they are not interested in air subjects academically.

TABLE X

PER CENT OF STUDENTS, TEACHERS, AND PARENTS SHOWING DIFFERENT ATTITUDES TO THE QUESTION:

THE PROGRAM SHOULD BE:

S	T	P	E	
4	0	1		1. Compulsory to junior and senior boys and girls.
2	0	0		2. Compulsory to junior and senior boys.
1	0	1		3. Compulsory to senior boys.
81	93	86		4. Elective to junior and senior boys and girls.
12	7	12		5. Elective to junior and senior boys.
100	100	100		
N 349	30	86		

TABLE XI

PER CENT OF STUDENTS, TEACHERS, AND PARENTS SHOWING DIFFERENT ATTITUDES TO THE QUESTION:

TO WHAT EXTENT HAVE YOU TRAVELED BY AIR?

S	T	P	E	
14	7	23		1. I have handled the controls of an aircraft.
3	12	11		2. I have piloted an aircraft.
30	19	49		3. I have traveled by commercial airlines.
35	19	49		4. I have never been up in an aircraft.
18	7	12		5. I have never been inside an aircraft.
100	100	100		
N 347	43	57		

CHAPTER V

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

I. SUMMARY

The purpose of this study was to determine the attitudes of parents, administrators and high school teachers, junior and senior high school students and aircraft executives toward an aviation program in high school with flight instruction as the culminating activity.

In developing this study the normative survey method, in this case questionnaires, was used to discover attitudes related to the problem. Using a combination of attitude scaling methods a large number of questions and statements were collected, categorized under the four groupings (parents, students, teachers, and aircraft executives), analyzed and judged. When duplicate, irrelevant and ambiguous questions and statements were eliminated, statements were arranged to elicit a rough continuum of attitudes under each question concerning aviation education and flight instruction. These new sets of questionnaires were then finally analyzed by a large number of advanced students before they were administered or sent to the interviewees.

Before and after the questionnaires were completed a research was undertaken to locate literature concerned with aviation education. This review of literature revealed that there was a need for continued and concentrated aviation education in the world today; that this need was being partially met by private concerns, clubs, and an international organization (C. A. P.); and that schools integrating aviation education in their curriculums provide enough aviation background to form a basis for flight instruction in secondary schools.

This review of literature showed that, generally speaking, the public is interested in extending aviation education because the airplane is such an important part of their daily lives. It also showed that more and more of the high schools that are including aviation education in their curriculums are making provision to include some flight training.

The specific problem, attitudes of parents, students, of junior and senior high school age, teachers and administrators of the lower Kittitas Valley, and executives of the aircraft industry toward aviation education, was investigated with the aid of several major hypotheses.

The first hypothesis was that parents are favorable to the teaching of flight instruction in their high schools. The results of the questionnaires to parents supported the hypothesis by indicating that a majority of parents were not only interested in an aviation program with flight instruction as part of their school's curriculum, but that they were willing to help and willing to assume some of the cost of such a

program. Those parents showing a reluctance to participate in or even to initiate an aviation program were those who had had very little personal experience with airplanes or air travel. The parent reaction was positive but definitely not as enthusiastic as the student reaction.

The second hypothesis was that junior and senior high school students would be enthusiastic about taking aviation education and flight training in high school. Questionnaire results strongly supported this hypothesis. Even though a large number of students had never been up in an aircraft, they were overwhelmingly enthusiastic about the introduction of an aviation education and flight training program. They prefer these courses to be elective for junior and senior high school boys and girls. Even as electives the majority of students would take a complete aviation course and flight instruction because they show that they feel aviation is an important aspect of their lives. Some would use it in planning future careers; some felt they could use it in connection with a business; others wanted to learn flying for pleasure.

The third hypothesis stated that executives of aircraft companies are willing to sponsor an aviation program in high school. The executives of small aircraft manufacturing companies returning questionnaires showed that they were definitely interested in aviation as part of the whole school program. All who responded were happy to offer aid in developing a curriculum, conducting a workshop, furnishing resource

personnel, as well as furnishing literature, material, information and available filmstrips. They would welcome field trips to their plants, furnish detailed outlines of the cost of operation of aircraft, and furnish information on the best procedure and cost of insuring plane and passengers. One company would furnish the school a training airplane at cost.

The fourth hypothesis stated that teachers and administrators would be favorably inclined toward an aviation program. A large number of administrators and teachers were not in favor of the addition of aviation courses to their curriculums. Many of them would actively oppose such an addition. The largest percentage of this group felt that aviation was not important to education; therefore, flight instruction should be taught with no connection to the school program. Although many had traveled by air or had been connected with an air military service, they showed a reluctance in accepting the idea of aviation education and flight as anything in which they would like to participate.

The fifth hypothesis, based on studies of various high school curriculums, was that flight instruction was a necessary part of the aviation program. This hypothesis was tested by the review of aviation literature; recent writings of people who were interested in adding a meaningful course in aviation education into their high school

curriculums showed that they were interested in adding flight instruction to culminate any study they made of aeronautics. The Texas State Curriculum Guide has an aviation course outlined from kindergarten through high school. In the high school many scientific courses are culminated with a minimum of flight training. The Oklahoma schools use the airplane in many ways. They have the Flying Schoolroom which takes classes on a tour of the United States. They are making provisions for orientation flights. Pleasant Hill, California, has had very comprehensive aviation education courses and offers orientation flights as a culmination of these courses. Clover Park High School in Tacoma, Washington, has one of the most complete aviation education programs for the high school yet initiated in the United States. Their program covers all phases of aviation education in addition to engine mechanics. Graduates from the Clover Park program have either a private pilot's license, a commercial pilot's license or an Aviation and Engine (A&E) Certificate to qualify them as aircraft mechanics. This program is so organized that after graduation from high school, students can continue in any phase of the Aviation School until they qualify for the license or certificate which they desire.

A study of the returns from the questionnaire shows that the views as stated in this hypothesis are supported by the review of literature and to some extent by the people of Kittitas Valley.

The sixth and last hypothesis was that the public would be generally interested in an aviation program. The review of literature revealed that there were many who were concerned about aviation and were sincerely interested in promoting good sound aviation education programs in or out of schools. But the questionnaires, when grouped together and analyzed, showed that the general public in the farming community of Kittitas County was mildly interested in aviation for themselves. Many of those questioned had never been near a plane and those who had could see it only as a form of transportation when they were in a hurry. Many people of the Lower Kittitas Valley were apparently not aware of the many times an airplane enters their lives and performs services other than transporting people and goods, such as pleasure flying. While many were enthusiastic about aviation education for their children, there were also many who showed indifference. This was evident in comments and answers to the questionnaires despite the fact that crop dusting, air rescue, fire spotting, CAP, and ROTC activities are an integral part of this community. The least enthusiastic group were teachers. Perhaps this is due to problems associated with curriculum development and their current training in this area. That part of the public that is interested is extremely interested and anxious that other people become interested and aware of the importance of the airplane to civilization of today.

II. CONCLUSIONS

The following conclusions seem justifiable:

1. That parents are favorable to the teaching of aviation education in their high schools, but that flight instruction should be an out-of-school activity.

2. That junior and senior high school students are very enthusiastic about making aviation education and flight instruction part of their high school curriculum.

3. That executives of aircraft companies are willing to sponsor an aviation program in high schools.

4. That teachers and administrators were the least favorably inclined toward the addition of an aviation program to their high school curriculums. About half were favorable towards academic aviation subjects but most all felt that flight instruction should not be a part of the regularly scheduled school program.

5. That flight instruction is considered a desirable part of the aviation program in high school by those who are enthusiastic in having aviation as part of their high school curriculums.

III. EDUCATIONAL IMPLICATIONS

This research indicates if attitudes toward aviation are to become more favorable much could be done toward initiating a

community program for adults to study the implication of the airplane and aviation education on the daily lives of the people of that community. While aviation education and aviation material in the school curriculum is vitally important, adult education is a major immediate need. Movies, books, lectures, and sound public relations could do much toward promoting adult interest in aviation with purposeful flight experiences being offered.

Flight experience is never to be considered an end in itself, but only a means to an end, the end being the purpose for which the flight is taken. There are aerial survey flights for community study and understanding of land-use problems through which the adult could better see the land-use problem, whether it is urban or rural. Such surveys may lead to community planning and progress, such as the inter-relationship of transportation facilities, community expansion and real estate development, farm-to-market problems and the development of educational and recreational facilities. Used correctly the airplane can be of immense use to any community development.

In rural areas the adult education program could lead to study and analysis of soil conservation practices and agricultural problems from the air. Such a program to promote public awareness and understanding of land-use problems needs to receive community, press and radio support. Through the use of the airplane as a means toward this very important end there develops, as a by-product, public awareness,

interest, understanding and an acceptance of aviation and the airplane as a potential tool in everyday life.

Another by-product of adult education would be its impact on the young people of the community and perhaps upon the schools.

An in-service training course or program would help educators become aware of the potentialities of an aviation program in their schools. Through such a program teachers could develop or see developed curriculums which integrate aviation education. Many of the scientific principles related to the theory of flight are already taught in many science classes but with no special focus. A teacher education program could be so organized that it acquaints all high school teachers with the basic principles of aviation education. The English teacher, the mathematics teacher, the history teacher, the vocational education teacher, as well as the science teacher could find a place for some phase of aviation education and find that this new media would bring increased interest to many classes. The in-service program would give these teachers confidence through the understanding of a new concept which would help them, in turn, to bring to their classes a new outlook on the modern world.

A further study might well be a survey similar to the one done at the high school level; this research could be conducted at the college level to find out if an aviation program with flight instruction might be more enthusiastically received at a higher level.

There is the possibility that colleges of education could develop in their present social studies or science courses a special section devoted to the understanding and teaching of the air age, aviation education and the history and use of aircraft. Students in these courses would then be better prepared to carry new concepts of the air age into the teaching field. Through their efforts many others could be made aware of the importance of aviation.

Many high school teachers would be less reluctant to teach aviation in their classes if material were available which would help guide such teaching. Materials explaining theories of flight, space travel, and aeronautics in general would be very helpful to the teacher whose background in aviation is limited. This is an area in which a person could gather, evaluate and write materials that would be of help to the high school teacher.

During this investigation it was amazing to discover that youth on its own initiative has been so successful in learning about many phases of aviation, especially the airplane itself. Their academic knowledge probably equals, if not surpasses, that of some teachers of the science subjects. The young people of today display a far greater knowledge of aviation and its implications on present-day living than do average adults. The research led to the belief that efforts might be more productive if directed to parents as well as youngsters. At present the younger generation is trying to lead an older generation

into new ways of thinking. Through the education of both generations they could work together toward a better world for all.

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APPENDIX A

FORMULATION OF QUESTIONS

If you were interested in the attitudes of the following groups on the introduction of a flight instruction program in High School, what would be the foremost question you would want them to answer?

EXAMPLE of type of questions desired:

Which of the following statements best express your feelings if a flight instructional program were initiated into your High School after your child had taken and mastered the basic aeronautical subjects offered him.

_____ I would be very happy to have such a program in the school.
_____ I would be pleased to have it available for those desiring such a program.
_____ I would leave it to the administrators to decide.
_____ I would not like to have it introduced into the school.
_____ I would violently object to such a program in the school.

Parents:

Administrators:

Students:

Aircraft Industry:

APPENDIX B

QUESTIONNAIRE TO PARENTS

1012 North Chestnut
Ellensburg, Washington
March, 1958

Dear Parents:

This letter is to clarify the enclosed questionnaire. I am making a study to obtain attitudes of parents, junior and senior high school students, teachers and administrators, and executives of the aircraft industries regarding the introduction of an aviation program which would include flight instructions in the high school. This study is to be limited to lower Kittitas County.

Through the attached questionnaire I hope to obtain your opinions about the teaching of aviation in high school with flight instruction as part of the program. Your name does not appear on the questionnaire and will not be used in the final report.

Your help is important in obtaining the information on the questionnaire.

Would you please return the questionnaire as soon as possible. Your son or daughter may return it to his homeroom teacher.

Thank you for your cooperation.

Sincerely yours,

Ben B. Johnson
Graduate Student

ATTITUDE TOWARD FLIGHT INSTRUCTION
IN HIGH SCHOOL

I am interested in your attitude towards flight instruction in the high school. Will you please read each of the following statements and place a check ( ) by the one which best indicates how you feel about instruction in aviation in the schools.

1. Which of the following statements best expresses your feelings if you were to hear the superintendent announce that the school district was planning to teach aviation subjects in your school district?

_____ I would be very happy to have such a program in my school.

_____ I would be pleased to have an aviation program available for those desiring such a program.

_____ I would leave it to the administrators to decide.

_____ I would not like to have it introduced into the school.

_____ I would openly oppose such a move.

2. Which of the following statements best expresses your feelings about how far a child should be permitted to continue in such a program?

_____ I would want my child to complete the course and get a private pilot's license (35 hrs. total--15 with an instructor, 20 by himself.)

_____ I would let the child continue until he had flown the plane by himself.

_____ I would stop my child before he flew the plane by himself.

_____ I would leave it to the student's discretion.

_____ I would not let him participate in such a program.

3. Which of the following statements best expresses your feelings if the administrators of your school district were to ask you to help initiate such a program into the school?

_____ I would be very happy to help.

_____ I would help a little to get it started.

_____ I would leave it to those who know about such things.

_____ I would be slightly opposed.

_____ I would openly oppose such a program.

4. Which of the following statements would best express your feelings after a flight program was initiated into your school?

_____ I would stand back of and work for such a program.

_____ I would be interested in and ask questions about the progress of the program.

_____ I would let it proceed but take no interest in it.

_____ I would look for and express faults about the program.

_____ I would openly oppose the program.

5. Which of the following statements would best express your feelings after such a program has been in progress for some time and has proven itself?

_____ I would urge my child to enter the program.

_____ I would talk about it but not urge the program.

_____ I would let my child decide without my viewpoint.

_____ I would try to discourage the program.

_____ I would forbid my child to enter this program.

6. Which of the following statements best expresses your thinking as to the best time to teach a flight program in high school?

_____ Aviation subjects and flight training should be taught during regular school hours.

_____ Aviation subjects should be taught on school time and flight instruction should be taught during out-of-school hours.

_____ Flight training should be taught on school time and aviation subjects during out-of-school hours.

_____ Aviation subjects and flight instruction should be taught in out-of-school hours.

_____ The flight program should not be connected with school.

7. The program should be:

_____ Compulsory to junior and senior boys and girls.

_____ Compulsory to junior and senior boys.

_____ Compulsory to senior boys.

_____ Elective to junior and senior boys and girls.

_____ Elective to junior and senior boys.

8. To what extent have you traveled by air?

_____ I have handled the controls of an aircraft.

_____ I have piloted an aircraft.

_____ I have traveled by commercial airlines.

_____ I have never been up in an airplane.

_____ I have never been inside an airplane.

9. Which of the following statements best expresses your thinking as to how such a program should be financed?

_____ I would be willing to pay all of the cost of flight instruction for my son or daughter.

_____ I would be willing to pay part of the cost of flight instruction for my son.

_____ I would be willing to pay part of the cost of flight instruction for my daughter.

_____ I would agree to assume any nominal costs that might be necessary in a flight program.

_____ I would not wish to pay any part of the cost of flight instruction.

APPENDIX C

QUESTIONNAIRE

TO JUNIOR AND SENIOR HIGH SCHOOL STUDENTS

ATTITUDE TOWARD FLIGHT INSTRUCTION
IN HIGH SCHOOL

I am interested in your attitude toward flight instruction in the high school. Will you please read each of the following statements and place a check ( ) by the one which best indicates how you feel about the instruction of aviation in the schools.

1. To what extent do you think aviation is an important aspect in education?

_____ Courses in aviation should be offered from kindergarten through high school finally including flight instructions.

_____ Courses in aviation should be offered in high school, including flight instructions.

_____ Courses in aviation should be offered from kindergarten through high school.

_____ Courses in aviation should be offered in high school.

_____ Aviation is not important in education.

2. Which of the following statements best expresses your feelings if an aviation educational program were offered in your school?

_____ I would enroll at once.

_____ I would enroll if a friend also enrolled.

_____ I would wait and see how it worked.

_____ I would aid the program but not enroll.

_____ I would have no interest.

3. Which of the following statements best expresses your feelings if an aviation educational program were introduced in your school and if it were to include a flight instructional program?

_____ I would be happy to have such a program.

_____ I would be pleased to have the program available for those interested.

_____ I would leave it up to the school administrators and teaching staff to decide.

_____ I would not like to have the program introduced.

_____ I would openly oppose such a move.

4. Which of the following statements best expresses your feelings about how far you would continue in such a program?

_____ I would complete the course and get private pilot's license (35 hours).

_____ I would continue the course through solo stage (8 hours dual--1 solo flight).

_____ I would continue to solo stage (8 hours dual).

_____ I would finish aviation courses but would not start flight training.

_____ I would not enter such a program.

5. Which of the following statements best expresses your thinking as to the best time to teach a flight program in high school?

_____ Aviation subjects and flight training should be taught during regular school hours.

_____ Aviation subjects should be taught during school hours and flight instruction should be taught out-of-school hours.

_____ Flight training should be given in school hours and aviation subjects taught out-of-school hours.

_____ Aviation subjects and flight instruction should be taught out-of-school hours.

_____ Flight program should not be connected with school.

6. The program should be:

_____ Compulsory to junior and senior boys and girls.

_____ Compulsory to junior and senior boys.

_____ Compulsory to senior boys.

_____ Elective to junior and senior boys and girls.

_____ Elective to junior and senior boys.

7. To what extent have you traveled by air?

_____ I have handled the controls.

_____ I have piloted an aircraft.

_____ I have flown on commercial airlines.

_____ I have never been up.

_____ I have never been inside an airplane.

8. To what extent would you be able to use the knowledge of aviation that you would acquire in high school?

_____ I would use it extensively because I intend to make aviation a career.

_____ I believe I would be able to use the knowledge extensively in any business.

_____ It would be a popular hobby for me.

_____ I could use it, but it would not be important to me.

_____ It will be of no use to me.

APPENDIX D

QUESTIONNAIRE TO TEACHERS AND ADMINISTRATORS

1012 North Chestnut
Ellensburg, Washington
March, 1958

Dear _____:

The attached questionnaire is part of a study to obtain attitudes of administrators and teachers, aircraft industries executives, parents and junior and senior high school students regarding the introduction of an aviation program which would be culminated with a flight instructional program in the high school. This study is to be limited to lower Kittitas County.

The questionnaire will be used as thesis data for a Master's Degree at Central Washington College of Education. I am interested in obtaining a picture of these attitudes in order to see whether people would like the aviation program extended in the public school curriculum. I can know your opinion only if you fill out the attached questionnaire.

Your help is essential. The return of this questionnaire is important in obtaining the information desired. Your name will not be used in the study. If you are interested in seeing the results of this study, please fill out the detachable form at the end of this questionnaire.

Thank you for your cooperation.

Sincerely yours,

Ben B. Johnson
Graduate Student

ATTITUDE TOWARD FLIGHT INSTRUCTION
IN HIGH SCHOOL

I am interested in your attitude towards flight instruction in the high school. Will you please read each of the following statements and place a check ( ) by the one which best indicates how you feel about the instruction of aviation in the schools.

1. To what extent do you think aviation is an important aspect in education?

_____ Aviation study should be offered from kindergarten through high school culminating in flight instruction.

_____ Aviation courses should be offered in high school culminating in flight instruction.

_____ Aviation study should be offered from kindergarten through high school.

_____ Aviation courses should be offered in high school.

_____ Aviation is not important in education.

2. Which of the following statements best expresses your feelings should an aviation educational program be introduced in your school culminating in a flight instructional program?

_____ I would be happy to work with such a program.

_____ I would be pleased to have such a program in the school and would assist the program.

_____ I would work impartially in a school system which had an aviation program.

_____ I would work in the school system which had an aviation program, but would be against the program.

_____ I would not work in a school system offering such a program.

3. Which one of the following statements best expresses your thinking as to the best time to teach a flight program in high school?

_____ Aviation subjects and flight training should be taught during regular school hours.

_____ Aviation subjects should be taught during the school day and flight instructions should be given during outside school hours.

_____ Flight training should be given during school hours and aviation subjects be given in out-of-school hours.

_____ Aviation subjects and flight instruction should both be taught in out-of-school hours.

_____ A flight program should not be connected with school.

4. The program should be:

_____ Compulsory to junior and senior boys and girls.

_____ Compulsory to junior and senior boys.

_____ Compulsory to senior boys.

_____ Elective to junior and senior boys and girls.

_____ Elective to junior and senior boys.

5. To what extent have you traveled by air?

_____ I have handled the controls.

_____ I have piloted an aircraft.

_____ I have flown by commercial airlines.

_____ I have never been up.

_____ I have never been inside an airplane.

I would like to receive a copy of this study.

NAME _____

ADDRESS _____

_____

APPENDIX E

QUESTIONNAIRE TO AIRCRAFT EXECUTIVES

1012 North Chestnut
Ellensburg, Washington
March, 1958

Dear Sir:

The attached questionnaire is part of a study to obtain attitudes of aircraft industry executives, parents, administrators and teachers, and junior and senior high school students regarding the introduction of an aviation program which would include a flight instructional program in the high school. This study is to be limited to lower Kittitas County in the State of Washington, and to aircraft executives.

Something must be done to encourage and attract our young people to training for a future in the air. Our nation's future rests with these young people. Because aviation's new duties and burdens rest upon the youth of our country we must all help them prepare. This study is to obtain information that will be valuable in initiating a program of flight instruction in the high school. Such a program would be a step in meeting the challenge of the air age. Through a successful program we hope to acquaint students with aviation as a career.

Your help is essential. The return of this questionnaire is important in obtaining the information desired. Your name will not be used in the study unless you so desire, but if you are interested in seeing the results of this study, please fill out and return the detachable form at the end of this questionnaire.

Thank you for your cooperation.

Sincerely yours,

Ben B. Johnson
Graduate Student

ATTITUDE TOWARD FLIGHT INSTRUCTION
IN HIGH SCHOOL

I am interested in attitudes towards flight instruction in the high school. Will you please read each of the following statements and place a check ( ) by the one which best indicates how you feel about instruction of aviation in the schools?

1. To what extent do you think aviation is an important aspect in education?

_____ Courses in aviation should be offered from kindergarten through high school culminated with flight instruction.

_____ Courses in aviation should be offered in high school culminated with flight instruction.

_____ Courses in aviation should be offered from kindergarten through high school.

_____ Courses in aviation should be offered in high school.

_____ Courses in aviation are not of sufficient importance in education to be included as separate course work.

2. To what extent would you be willing to aid such an experimental program in the high school?

_____ I would furnish an airplane and all operational expenses.

_____ I would furnish the school with only an airplane (school would have to pay operational expenses).

_____ I would pay operational expenses if the school furnished an airplane.

_____ I would furnish aid in technical service.

_____ I would furnish no aid.

3. To what extent would the number of people interested in the program guide your answer?

_____ I would give any aid possible regardless of number of interested public.

_____ I would give limited aid regardless of number of interested public.

_____ I would give aid, but public interest would influence the amount of aid to be given.

_____ If public interest were sufficient, I would reconsider any negative answers given.

_____ I would give no aid regardless of public interest.

Below is a list of things I consider essential in instituting an experimental program of flight instruction in the high school. Please check as many items as you wish.

1. To help a school faculty institute aviation education in high school which of the following would you aid and sponsor?

_____ Help develop a curriculum.

_____ Help develop a workshop.

_____ Hold a workshop for the faculty.

_____ Furnish resource personnel.

_____ Furnish literature.

_____ Welcome field trips to the plant.

_____ Furnish material and information.

_____ Furnish films and filmstrips.

_____ Furnish detailed outline of cost of operation of aircraft.

_____ Furnish information on the best procedure and cost of insuring plane and passengers.

_____ Help finance field trips to aviation facilities.

I would like to receive a copy of this study.

NAME_____ ADDRESS_____

APPENDIX F

TABULATION OF QUESTIONNAIRE DATA

Choice of Statement	Question Number 1	2	3	4	5	6	7	8	9
	(Students--N 361--100% return)								
A	8	141	117	122	111	14	47	28	
B	199	15	189	29	175	7	12	92	
C	0	143	38	14	13	4	105	115	
D	85	26	3	39	41	281	122	80	
E	51	36	5	53	12	43	61	46	
	343	361	352	257	352	349	347	361	
	(Teachers--N 43--100% return)								
A	1	2	4	0	3				
B	5	8	15	0	5				
C	5	15	0	0	24				
D	12	9	5	28	8				
E	16	1	18	2	3				
	39	35	42	30	43				
	(Parents--N 105--29% return)								
A	7	16	13	14	18	21	1	13	7
B	52	15	11	46	41	36	0	6	21
C	12	3	46	14	26	1	1	3	6
D	19	44	11	3	9	16	74	28	27
E	12	20	17	12	9	24	10	7	31
	102	98	98	89	103	98	86	57	92
	(Aircraft Executives--N 4--57% return)								
A			2						
B	1		2						
C	2								
D	1	3							
E									
	4	3	4						