AN ABSTRACT OF THE DISSERTATION OF

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TITLE: IDENTIFICATION OF IN-SERVICE PERSONNEL DEVELOPMENT NEEDS IN CAREER AWARENESS FOR PORTLAND AND SEATTLE ELEMENTARY SCHOOLS

Abstract approved: Redacted for Privacy

Dr. Wayne Courtney

The main objective of this research was to determine the professional in-service development needs of fourth, fifth, and sixth grade teachers in the metropolitan school districts of Portland and Seattle. The primary objectives for conducting this research investigation were as follows:

1. To determine the professional in-service development needs of fourth, fifth and sixth grade elementary teachers in Portland and Seattle public schools.

2. To examine the differences between control teacher groups and experimental teacher groups, and to determine the treatment effect advisory committee members have on elementary teacher decision-making processes.

3. To analyze the differences between teachers located in average and above average income demographic areas and teachers located in poverty or minority income demographic areas for the two cities.

There were four subsidiary objectives of the research project and they were as follows:

4. To determine the subsidiary interaction differences between city teacher groups and demographic teacher groups.

5. To analyze the statistical subsidiary interaction differences between city teacher groups and treatment effect groups.

6. To examine the subsidiary interaction differences between demographic teacher groups and treatment effect groups.

7. To determine the subsidiary interaction differences between city teacher groups, demographic teacher groups and the treatment effect groups.

Procedures

Research data were obtained through the utilization of a Q-Sort Card Deck. This Card Deck was a result of the efforts put forth by a selected Delphi panel; panel members reacted to three rounds of the Delphi technique in determining what need statements should be included in the research project. In all, a total of 84 need statements or dependent variables were presented to the 160 elementary teachers for their reactions. Elementary teachers met in small groups of ten each at various locations in the two cities when reacting to the Card Deck.

The last card of the Card Deck provided the respondents an opportunity to rank the top ten priorities they believed to be most important in meeting their professional in-service development needs. A priority matrix revealed the findings of responses to this card.

The research project applied the fixed three-way analysis of variance design for the analyses of data and tests of hypotheses.

Conclusions

The statistical findings of this research project offers the following conclusions:

1. The top twenty priorities should be included in the professional in-service education programs for Portland and Seattle.

2. There appears to be very few differences between the two cities. Out of 84 primary main effects, there were only four rejections.

3. The treatment effect of advisory committees appears to have little influence on the decision-making processes of elementary teachers.

4. There were very few differences between demographic areas in the two cities. Seventy-nine tests of significance were accepted and five were rejected.

Implications

In view of the findings and conclusions of this study, the following implications are provided.

1. The eight functional areas of career awareness should be considered when planning, developing and implementing career awareness in-service programs; they are as follows: individual self-awareness, economic and social awareness, educational awareness, awareness of careers, decision-making abilities, work understanding and job skills, work aptitudes and appreciations, and other areas in career awareness.

2. The top twenty priority needs should be given consideration as a part of in-service education for metropolitan city schools.

3. Additional research needs to be conducted on the effectiveness and influence of advisory committees as a part of the educational environment.

IDENTIFICATION OF IN-SERVICE PERSONNEL DEVELOPMENT NEEDS IN CAREER AWARENESS FOR PORTLAND AND SEATTLE ELEMENTARY SCHOOLS

by

Bill Duane Syhlman

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CHAPTER I

INTRODUCTION

Background of the Problem

Being a productive and self-fulfilling person in a cultural pluralistic society seems to be a difficult goal attainment for many individuals. The temperament of our society indicates that there is a vital need for an efficient educational system for all students in gaining insight and understanding of careers in a complex world of work. Never before in the history of American education and the economy of the nation has the need for the development of human resources been so important. Government, religious and social agencies are all realizing the cultural pluralistic nature of our nation. Career education is an integral part of the cultural growth of America.

Careers, vocations, occupations or work are similar to most religious principles; their purpose, to serve humanity. This guiding principle is brought to point in John 13:

> He came to Simon Peter; and Peter said to him, "Lord, do you wash my feet?" Jesus answered him, "What I am doing you do not know now, but afterward you will understand." Peter said to him, "Lord, not my feet only but my hands and my head!" Jesus said to him, "He who has bathed does not need to wash, except for his feet, but he is clean all over; and you are clean, but not all of you." For he knew who was to betray him; that was why

> he said, "You are not all clean." When he has washed their feet, and taken his garments, and resumed his place, he said to them, "Do you know what I have done to you? You call me Teacher and Lord; and you are right, for so I am. If I then, your Lord and Teacher, have washed your feet, you also ought to wash one another's feet. For I have given you an example, that you also should do as I have done to you. Truly, truly, I say to you, a servant is not greater than his master; nor is he who is sent greater than he who sent him. If you know these things, blessed are you if you do them. (p. 102)

Service to mankind, regardless of the nature or task to be performed, has human worth, dignity and value. The greatest asset a teacher can have is to serve students, and through this effort teach students to serve mankind to their utmost ability. All careers, regardless of their nature, are significant and contribute to the welfare of society. Work and life can only be fulfilling when service to mankind is paramount throughout the various occupational stratas. Until this end is met, social unrest and discontent may continue to be the trend of the times.

Traditional education has attempted to meet the emerging needs of youth and adults, but in many cases it has not been responsible or accountable to certain segments of the public school population. Many teachers and administrative personnel are trapped in old customs or practices in carrying out educational programs. The need for an educational system which synthesizes an individual's career aspirations, along with a life style development, is essential in optimizing human resource potential. As of to date, minimum effort has been directed in accomplishing these aspects of our educational and social environment.

Commissioner of Education Sidney P. Marland (1971) is optimistic concerning our present educational system. The nation is ready for some major improvements in education and he offers the concept of career education as a major thrust for improving schools in the public domain. Career education is a relatively new philosophy of education; it attempts to dissolve the dichotomy that exists between academic or general education and vocational education. Career education goals and objectives are to prepare people for a productive and participating career role along with a social life role which is responsive to moral and ethical participation in a cultural pluralistic society. The need for initiating this philosophy throughout public schools, at all grade levels, depends to a great extent on higher education for innovation and leadership in teacher and administrative personnel development. There are some critics who maintain that higher education is not fulfilling its obligations towards these ends

Career education seeks to form a synergism between all levels of education and promotes the concept of forming a conglomerate of work and life roles for all age groups. This can only be accomplished through an educational system which initiates the concept and philosophy at an early childhood age. Career awareness must begin at an early age and elementary students need opportunities in which they become aware of the dignity of work and the essentials necessary for success in an occupation. Elementary students need to relate work and life together so that a career life style can be developed which contributes to human productivity and self-fulfillment

Social unrest among Americans has been evident in our cultural pluralistic society. The U. S. Department of Health, Education and Welfare (1972), provides the following relative to educational and social ills:

> The frustrations which appear to permeate the consciousness of the American society are remarkable. A nation whose economy has produced wealth beyond the imagination of any people in history and has disseminated it more broadly and equally than wealth has ever been distributed appears to find little satisfaction in that relative affluence. A nation at the peak of its power is disillusioned by the uses it has made of that power. Some of these frustrations are unjustified, growing from over-expectations which could not be realized; others are valid regrets for sins of omission or commission. Few are caused solely by education, but most could be helped by its appropriate applications. Career education is specifically applicable to several (pp. 13-14).

Technological changes brought about in our economy have forced us into a post-industrial society. There are more workers in providing services and white collar careers than there are in producing or farming occupations. Career education will have to adjust and keep abreast with the occupational trends if it is to make any significant impact in the educational system. As occupational structures change, so must the educational enterprise change in meeting career needs of all people. This must be understood by students as well as educational personnel, and it should begin at an early age for all youth.

Statement of the Problem

The primary purpose of this research project was to identify the in-service teacher education needs of fourth, fifth and sixth grade teachers in Portland and Seattle public schools. Elementary

teachers from two school systems, as well as business advisory persons from each city, were the major participants.

Several major functions were identified throughout the investigation of the problem:

1. The procurement of research funding was essential in collecting the necessary data.
2. The organization and application of the Delphi process was essential in identifying, constructing and validating the need statements and research process.
3. The analysis of data in identifying in-service teacher education needs in elementary education included the treatment effect of business and industrial advisory committee persons.
4. The analysis of data tested three primary and four subsidiary hypotheses which were considered to be important to all fourth, fifth and sixth grade elementary teachers.
5. The suggestions or implications to be reviewed for the development of career awareness, curriculum and instructional content, educational goals and objectives, and teaching strategies for institutions of higher education to employ for in-service personnel development.
6. The analysis of implications and influence of business advisory persons in educational decision-making.
7. The analysis of needs between elementary teachers in

high poverty populated schools and schools located in average income areas.

Definitions of Terms

It was essential to clarify and standardize certain terms expressed throughout the research project. There were other terms included, but they are relatively understandable or self-explanatory as they stand. The following terms are defined:

1. Average or Above Average Income Demographic Groups are elementary teachers who teach in elementary schools located in average or above average income areas as identified by school district administrative personnel.
2. Analysis of Variance (ANOVA) is the analysis of the total variability of a set of data (measured by their total sum of squares) into components which can be attributed to different sources of variation. A table which lists the various sources of variation together with the degrees of freedom, sum of squares, mean squares and values of F, is an analysis of variance table.
3. Career Awareness is a career education component in grades K-6 where students will develop awareness of the many occupational careers available, develop awareness of self in relation to the occupation career role, develop foundations for wholesome attitudes toward work and society, develop attitudes of respect and appreciation towards workers in all fields and make tentative choices

of career cluster to explore in greater depth during mid-school years.

4. Career Cluster is an approach arrived through the development of skills and understanding which relate to families of occupations. Selected occupations are clustered in logical groups in which the occupations are related because they have similar teachable skills and knowledge requirements.
5. Career Education is the total effort of public education and the community aimed at helping all individuals to become familiar with the values of a work-oriented society, to integrate these values in their lives in such a way that work becomes possible, meaningful, and satisfying to each individual.
6. Career Exploration includes grades 7-10 where students explore key occupational areas and assess their own interests and abilities, become familiar with occupational classifications and clusters, develop awareness of relevant factors to be considered in decision-making, gain experience in meaningful decision-making and develop tentative occupational plans and arrive at a tentative career choice.
7. Control Groups are fourth, fifth, and sixth grade teachers who had no exposure to the treatment effect; the influence of advisory committee persons.

8. Cultural Pluralism is the sum characteristics of the various cultural and counter-cultural movements in a diverse populated society.

9. Delphi Panel is a group of selected persons who are involved in and subjected to a series of three or four rounds of the Delphi technique.

10. Delphi Technique is a method of developing and refining goals, statements or forecasts through a series of statistical treatments. Upon conclusion of the process, data may be attained from panel members which validates goals, objectives, forecasts, and in the care of this study, need statements for personnel development in career awareness.

11. Experimental Groups was a group of elementary teachers who were subjected to the treatment effect of business advisory committee persons in determining the degree of influence in educational decision-making.

12. Human Resources pertains to the total public and private sector development and production for the economy as a result of human investment.

13. In-Service Personnel Development includes teacher education, both credit and non-credit courses, workshops, seminars, and individual study, which contributes to the personal and professional growth of participating teachers.

14. Occupational Education generally refers to all community college programs that combine appropriate portions of technical, manipulative, general, and elective courses to prepare students for employment upon the successful completion of the course.

15. Occupational Specialization includes post high school and adult students where they are involved in a specialized job area, have opportunity to form meaningful employer-employee type relations and be provided necessary re-training or upgrading skills.

16. Occupational Preparation includes grades 11-12 where students acquire occupational skills and knowledge for entry level employment and/or advanced occupational training, tie a majority of high school experiences into generalized career goals, develop acceptable job attitudes and be involved in cooperative work experience and have the opportunity to be a member of a vocational student organization.

17. Poverty - Minority Demographic Area Groups are those elementary teachers from schools located in high poverty and minority areas of the metropolitan city as identified by public school research and administrative personnel.

18. Treatment Effect in the analysis of variance, is a quantity usually a parameter, which signifies the amount of change in a response produced by a particular treatment.

10. Vocational Education is the specific vocational-technical skill development or occupational development which is carried on at the various stratas of public and private education

Hypothesis for the Study

The following are the primary hypotheses which were applied in the study:

1. There are no significant differences between the mean scores for Portland and Seattle metropolitan cities for in-service elementary teacher development needs in career awareness programs.
2. There are no significant mean differences between in-service elementary teachers need in schools located in high poverty and minority demographic group areas of the cities and those located in average or above average demographic income areas of the two metropolitan cities.
3. There are no significant mean differences between control groups and experimental groups (i.e., treatment effect of business advisory leaders from the community has no significant effect on the decisions reached upon by the elementary teachers in experimental groups).

Subsidiary hypotheses which were tested due to the design of the analyses were:

4. There is no significant interaction between city and treatment.

5. There is no significant interaction between city and demographic.
6. There is no significant interaction between demographic and treatment.
7. There is no significant interaction between city and demographic and treatment.

Educators put great stock in the opinions of business and industrial leaders through the utilization of advisory committees and councils; the hypothesis of no significant differences between control groups and experimental groups rejects the null hypothesis providing these beliefs are true. There also exists some varied opinions as to what high poverty and minority demographic area groups need in the way of educational programs and what the middle-class youth in educational goal attainments. The second hypothesis provides for possible alternatives to this issue. Individual cities place great importance on developing paradigmatic models of unique educational programs, hypothesis number one provides insight into this particular issue. The remaining hypotheses test for interaction effects between the cities, areas and demographic groups.

Rationale and Need of the Study

The assessment of professional in-service personnel development needs was the major thrust of this study, and it was specifically directed to determine what elementary teachers believe is important or not important in career awareness. Since the

philosophy of career education and career awareness is relatively young to education, it seemed appropriate to determine the needs of teachers for implementing the program in elementary schools. Whenever change is to occur in organizations, there generally must be correlating change in the personnel.

The need for change in elementary schools and the emerging challenges confronting teachers has continued to be a major issue, and the implications for change in the direction of career education and career awareness is one major problem needing intensive research and development. Carl R. Rogers (1969) provides these comments regarding the need for change:

> We are faced with a great change in values and often with a loss of values in our young people--culminating in those who "drop out" of our culture and its value system. We are facing the tremendous racial tensions and problems of the minority groups as they find their way out of the ghettos--whether in non-violent or violent ways--with our educational system inevitably drawn into this struggle. We cannot avoid rapidity of change which outdates knowledge before it can be put to use. We cannot fail to see the tidal wave of desire for participation which sweeps almost all groups in most countries. Essentially, people are saying, especially educators, "I want to participate in the decisions which affect me and my future." Can education come to grips with real problems of our society? As I have observed the rigidity, stuffiness, and bureaucratic mentality of many educators, I feel it is a real toss-up as to whether education can meet these challenges, in spite of the many exciting small experiments which are going on.
>
> It is not that there has been a lack of plans for change in our education systems. There have been many such plans--indeed a surplus. But nearly always these have been attempts to bring change in from the outside and such efforts have been largely futile (pp. 57-58).

If education is to influence our value system and change our curricula strategy, it is more than likely to occur in the

elementary grade levels. The need for developing a life cycle around the human resources development concept and making career education an integral segment of this philosophical base is essential to the welfare of our American social system. Changing teachers is a difficult task. This becomes apparent especially when change is directed at altering the curricula or teaching patterns and structures. We must identify just exactly what we are seeking to change; therefore, this study attempted to determine what fourth, fifth, and sixth grade teachers in Seattle and Portland believe is important or not important, for professional growth or development in career awareness.

Our national leaders in education believe that career education is a step in the right direction for instituting change in our metropolitan public schools. The present study assumed that the initiation of career awareness curricula at the elementary grade levels may be a positive and enduring influence in developing societal values.

In order to secure the necessary financial support for carrying out the operational and functional aspects of this study, it was necessary to develop a research construct of statements which identified the existing needs of personnel improvement in elementary grades.

Syhlman (1971) indicated that a critical need exists for business, industry, education, government and other social agencies to form a positive synergism when approaching problems or issues relating to poverty and minority career and educational development.

Educators in metropolitan public schools need to keep abreast with the changing world of work, and must develop a synergistic attitude between the social agencies and other institutions of our cultural pluralistic society in meeting the needs of youth and adults for career and occupational development.

Goldhammer (1971) states the following needs in developing the functions of the careers curriculum in elementary grades:

1. It must teach children the basic skills of learning and of social involvement. Participation in a technological society necessitates that an individual learn to read, write, and understand number relationships. These skills are necessary not only for participation as a citizen but also for conducting one's own affairs and for participation in the vocational life of the community.

2. The second function of the elementary school is to help students examine the essential functions that pertain to life and the individual and social activities of human beings that the child become fully aware of the range of potentialities for vocational careers that are available to him.

3. Central as the vocational career may be, it is imperative that the child becomes sensitive to the other types of social roles in which he will engage. This is accomplished in the elementary school through the study of his own society and culture as well as the societies and cultures of other people.

4. As the elementary school is centered in the social activities of men, it helps the child understand both the limitations and the potentialities inherent in his environment. Man's vocational and cultural existence is as much a part of the environment as is his physical existence. The elementary school helps children understand the characteristics of the environment and nature and how man has learned about them and uses them.

5. While the child is exploring the social and physical worlds about him, he is also coming to know more about himself, his basic interests and his own potentialities. A basic function of each elementary school

> is that of helping each child become his own unique self, learning how to make relevant choices to gain the satisfaction he needs to cope with the problems of his existence (pp. 18-19).*
>
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If we promote the concept of career education and the involvement of social institutions, it becomes obvious that personnel in-service development in the elementary schools is essential in curriculum development and the initiation of career awareness instructional strategies. Large metropolitan city school systems will need to carry on extensive personnel development programs in order to bring about major change directed towards career educational goals.

Law (1971) presents the following statements which are considered to be some of the operational principles for career development education:

1. Career development education must be sequentially organized from kindergarten through post-secondary and adult education.

2. Career development education must be organized as an integrated structure within the educational program. It should never be regarded as an add-on course or unit involving only selected teachers.

3. To meet the needs of all students, career development education must be flexible enough to allow each student at each educational level to make choices from the broadest base of knowledge; to have access to a cross-section of career curriculum experiences; to be free to move from one career curriculum to another; and to acquire preparation for the next educational level.

4. Career development education is student-centered rather than manpower-centered. It should not be seen as a mining operation strictly concerned with the selection of certain talents for the purpose of meeting

particular manpower needs but rather as a farming approach in which all individuals are provided with opportunities to grow and develop.

5. Career development programs must consider the individual's readiness level. This will necessitate determining what students have already learned or experienced and the general level of their intellectual, social, emotional and vocational maturity.

6. Career development education includes job skill preparation. The central purpose must be to enable each individual to assume the habits, knowledge, attitudes, problem-solving judgment and manipulative skills necessary for occupational entrance and progress. To fail in this aim would be to have no career development education program.

7. Career development education must not be limited to the traditional concepts of "awareness," "orientation," "exploration," and so on, as they relate to work, but must include awareness, orientation, exploration and progressive practice in developing the career aspects of self.

8. In career development education the school has the responsibility for assisting the individual in entering, adjusting and progressing in a job. This concept goes beyond the traditional approach of job placement and follow-up. It makes the school responsible for the individual until he is placed in a job, until he has adjusted to a job and until he has at least obtained a one-step advancement in that job either in the form of a salary increase, a step up the ladder or some other form of advancement.

9. Career development education must provide all levels an opportunity for the student to participate in concrete learning activities that closely approximate a variety of work roles, work settings and other life experiences reflecting the career life (pp. 233-234).*

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Metropolitan cities are faced with practically all aspects of the cultural pluralistic variables affecting social and economic values in American life. The city school system is the center of

learning activity within the metropolitan district; it is confronted with many of the same problems as that of city government and business. Adequate financing, relevant and meaningful education, personnel development, establishment of priorities, development of goals and objectives, adjustment to change, organized labor, the counter-culture, large corporations, private business and industry, the homeowner, the ghetto, minority group activism and many other variables create the cultural pluralism of today. Education has not been able to adjust readily to these past-mentioned situations.

The following needs statements are presented to support the research problem of in-service personnel development in metropolitan elementary public schools.

1. Both Portland and Seattle Public Schools expressed their desire to conduct the research to determine the in-service personnel needs of elementary teachers. Both systems allocated human and financial resources to the career-awareness thrust.
2. Experienced elementary teachers have not been exposed, in any great depth, to the career awareness philosophy which they need for implementing curricula and instructional strategies. Research identified those areas which should receive attention for in-service personnel development.
3. Student needs cannot be met unless research is conducted which identifies the skills, knowledges, understandings

and problem-solving abilities needed for developing a satisfactory life style.

4. Business, industrial and governmental needs cannot be met unless we develop a competent and productive work force in our capitalistic economy.
5. Elementary teachers cannot acquire the insight and understanding of careers without adequate change factors influencing their teaching styles. We need to determine if there are differences existing between those elementary schools in suburban areas and those located in highly concentrated minority group areas.
6. Both of the State Boards of Education in Oregon and Washington stated an expressed need for this kind of research.

In-service personnel development programs are essential to the betterment and development of teachers' needs, both on a personal and a professional basis. It was anticipated that through this research, higher education, state boards of public instruction, and public schools will be able to plan and organize meaningful personnel development programs in career education.

CHAPTER II

REVIEW OF RELATED LITERATURE

Career education is a relatively young philosophy in American education. Past history includes vocational education as being concentrated primarily at secondary and post-secondary levels of education. In order to gain a clear perspective of career awareness in the elementary school environment, it was necessary to examine research studies, curriculum materials, texts and periodical literature which were significant and congruent to career education concept.

The basis for developing the research model and, more specifically, the data collection procedures, was a result of inquiry into research and literature relevant to career education.

General or Related Literature in Career Education

The National Assessment of Educational Progress (1971) identified five major career and occupational development objectives:

1. prepare for making career decisions
2. improve career and occupational capabilities
3. possess skills that are generally useful in the world of work
4. practice effective work habits
5. have positive attitudes toward work)p. 15).

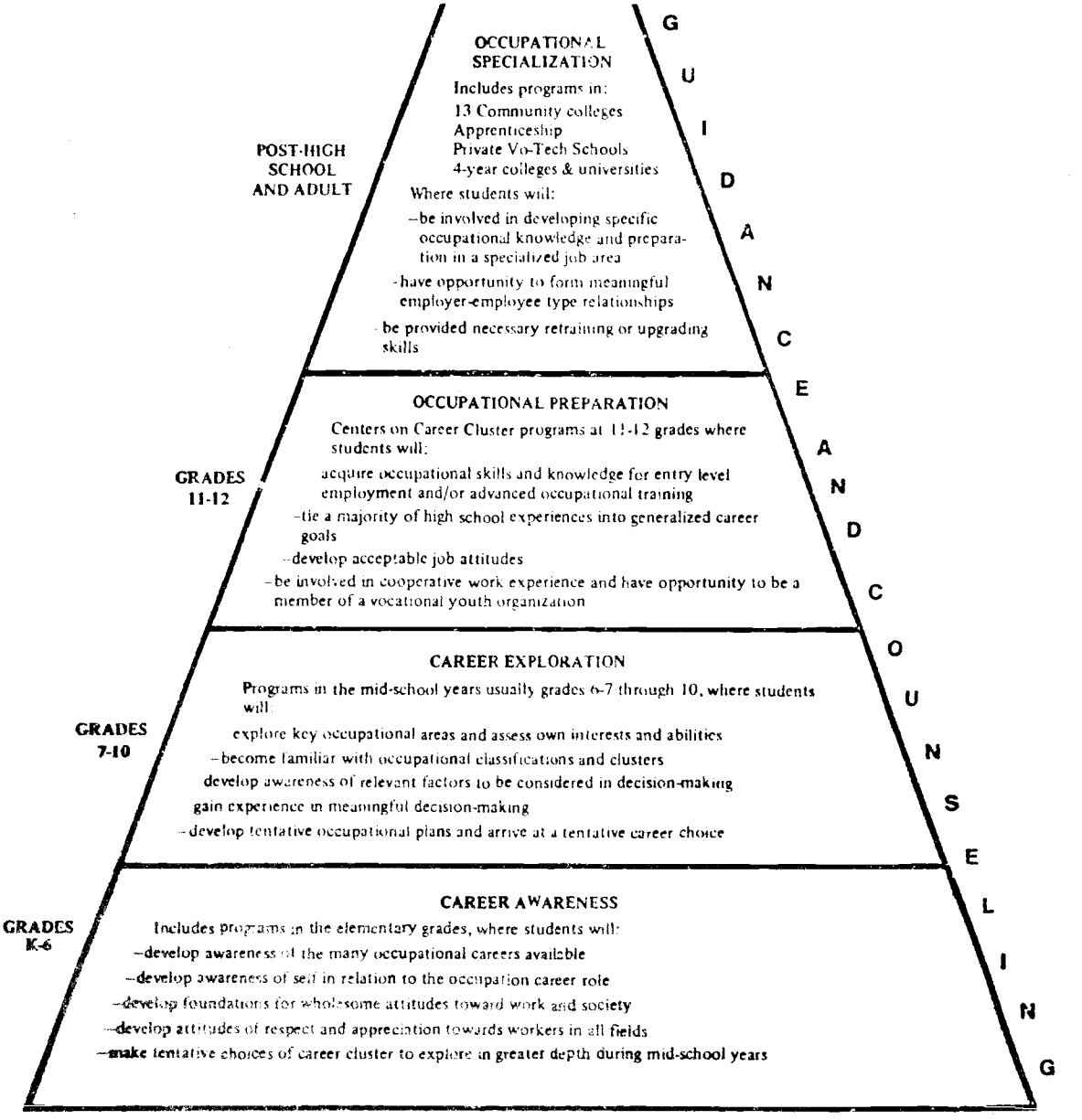
Within the framework of each objective, several sub-objectives were established at varying age levels of the life cycle.

Oregon has established a major goal of providing opportunities for all elementary students to enlarge their understanding of careers and economic competency in a changing world of work. The prime objective is to make available career awareness activities to 100 percent of the elementary students by 1977. At the same time, it is estimated that 20 percent of the students in grades one through six are currently participating in planned career awareness experiences as an integral part of their instructional program. In addition, it is estimated that 60 percent of Oregon's school districts are planning and beginning to implement career awareness activities.

Figure 1 is a model which conceptualizes the entire career educational philosophy for Oregon. This model provides insight into each of the educational sectors of career awareness, career exploration, occupational preparation and occupational specialization. The major goals for career awareness are: (1) develop awareness of the many occupational careers available in the world of work, (2) develop awareness of self in relation to the occupation career role, (3) develop foundations for wholesome attitudes towards work and society, (4) develop attitudes of respect and appreciation towards workers in all fields, and (5) make tentative choices of career clusters to explore in greater depth during mid-school years. Career guidance and counseling is an integral

CAREER EDUCATION

This Career Education Program is based upon a model which provides for comprehensive program development at the elementary, mid-school, secondary and post-high school levels. The articulated, continuous curriculum design is based upon a strong emphasis on guidance and counseling at every level, and can be represented as:



—THE OREGON WAY—

function throughout the educational strata, and becomes a major component of each educational career sector.

One of several school models in career awareness is being developed in the Portland Public Schools, and others are being implemented in Beaverton, Tigard and Springfield, Oregon. The 1973 State Plan for Vocational Education Mini-Report (1972) of Oregon further documents the total goals and objectives for career education and specifically, career awareness.

The Washington State Coordinating Council for Occupational Education, in the publication CAPES (A Guideline for Career Awareness Programs in the Elementary School, 1972) has identified the following objectives in meeting elementary students needs:

1. Develop in each student positive attitudes about the personal and social significance of work.
2. Develop each pupil's self-awareness.
3. Develop and expand the pupil's knowledge about a wide variety of occupations.
4. Assist students in developing their career and occupational aspirations.
5. Improve overall performance in the basic subjects by relating them around a career development theme (p. 7).

Figure 2 represents the model for career development in the State of Washington. This model also provides the philosophical bases for the implementing of career education in all spectrums of the educational environment.

Both Oregon and Washington have developed conceptual models for vocational, occupational and career education in order to conduct some sort of continuity in their systems of education. Career

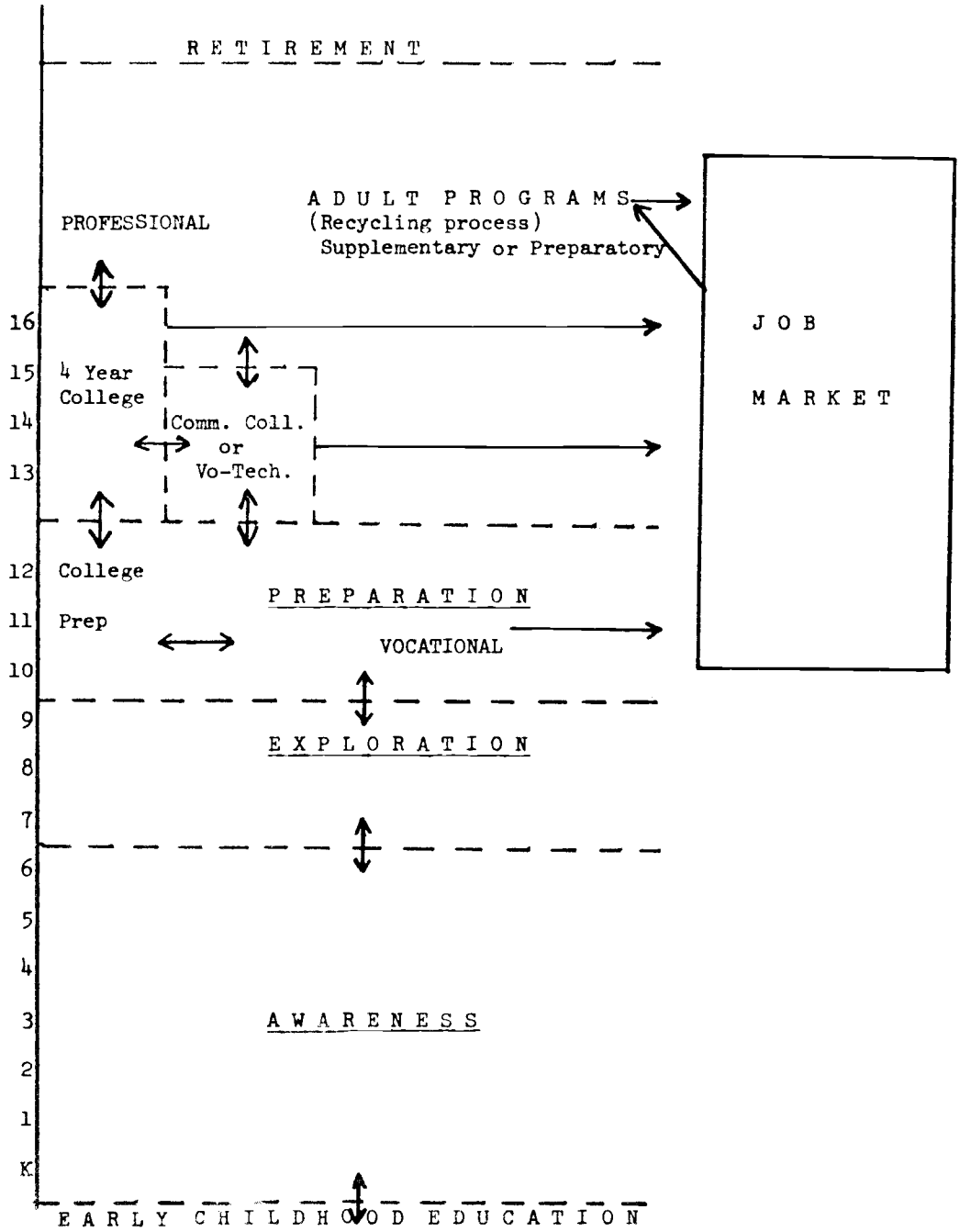


FIGURE 2.

The double-pointed arrows indicate that there are no sharp lines of distinction as to where one activity ends and another begins. Career Development (or Education) is a lifelong process and involves at all times Awareness, Exploration, and Preparation.

awareness is the foundation for both state systems. These models provide a mosaic of the educational process and the sequential development of functions as they progress from grade level to adult life.

The Seattle public school system has developed a model program in elementary schools for career awareness, and it is anticipated that there will be 100 percent participation by all Seattle elementary schools by the year 1975.

Hoyt, et al. (1972) have developed the following key concepts for career education:

1. Preparation for successful working careers shall be a key objective of all education.

2. Every teacher in every course will emphasize the contribution that subject matter can make to a successful career.

3. "Hands-On" occupationally-oriented experiences will be utilized as a method of teaching and motivating the learning of abstracted academic content.

4. Preparation for careers will be recognized as the mutual importance of work attitudes, human relations skills, orientation to the nature of the work day world, exposure to alternative career choices, and the acquisition of actual job skills.

5. Learning will not be rendered for the classroom, but learning environments for career education will also be identified in the home, the community, and employing establishments.

6. Beginning in early childhood and continuing through the regular school years, allowing the flexibility for a youth to leave for experience and return to school for further education (including opportunity for upgrading and continued refurbishing for adult workers and including productive use of leisure time and the retirement years), career education will seek to extend its time horizons from "womb to tomb".

7. Career education is a basic and pervasive approach to all education, but it in no way conflicts with other legitimate education objectives such as citizenship, culture, family responsibility, and basic education.

8. The schools cannot shed responsibility for the individual just because he has been handed a diploma or has dropped out. While it may not perform the actual placement function, the school has the responsibility to stick with the youth until he has his feet firmly on the next step of his career ladder, help him get back on the ladder if his foot slips, and be available to help him onto a new ladder at any point in the future that one proves to be too short or unsteady (p. 5-6).

Jones, et al. (1971) conducted extensive research in the development and evaluation of career guidance systems. The systematic approach used in the development and evaluation of objective-based programs involved five types of activities:

1. Identification of youth development needs; translation of these into behavioral objectives which state desired youth outcomes.

2. Classification of objectives by commonalities and priorities which serve as guidelines for the design of guidance and counseling programs.

3. Specification of all possible alternative strategies which could be used in individualized instructional and counseling programs and bring about student attainment of previously specified objectives; selection of strategies which seem most appropriate for groups of related objectives and groups of youth who have similar learning characteristics.

4. Design, scheduling and implementation of selected strategies by organizing instructional and counseling materials and procedures into individualized learning units.

5. Evaluation of the efficiency and effectiveness of such units in helping students achieve the desired terminal outcomes specified in each unit's behavioral objectives; corrective feedback to make modifications in products and procedures developed and used in previous activities (p. 3).

This study examined the needs of all grade levels and designed a comprehensive career guidance system from various elementary schools throughout the country.

From the past-mentioned goals, objectives and concepts, it would appear that the philosophy of career education is directed towards the individual and the development of each pupil's optimum capabilities in being a productive member of society. The investigation of general and related literature was inculcated into the research Delphi technique for generating the necessary need statements for professional in-service personnel development.

Related Studies in Career Awareness

Research by Peterson (1972) identified directional answers for career information inventory relating to kindergarten through the ninth grade. The primary purpose of this project was to develop career education learning packages that were appropriate for use in grades K-9. It was found through testing of materials that learning packages designed for grades K-6 were most appropriate, but that more in-depth materials need to be developed for grades 7-9. Both evaluation and research design were combined to form an overall evaluation of learning packages. Data on teacher beliefs about career education, as measured by the career information inventory and data on cognitive changes in student behavior, were subjected to statistical analysis. Four treatment groups were established in five school systems. Teacher A used Occupacs only; Teacher B used Occupacs plus other career education

enrichment activities; Teacher C used other career education enrichment activities only; and Teacher D used no career education activities. There were significant differences among treatment groups on post-test data regarding beliefs about career education.

Knoll and Stephens (1968) conducted a study of in-service training for vocational teachers in the state of Utah. The specific objectives of the study were to determine the extent of Utah's in-service training, compare it with that of other states, determine its effectiveness, and ascertain problem areas and make recommendations for improvement. Data were collected by a survey of other state programs, personal interviews with state vocational specialists, and a survey of state vocational leaders. The findings revealed that there is a need for (1) a systematic method of scheduling and coordinating in-service programs, (2) the present program should place more emphasis on doing rather than telling, (3) financial assistance should be offered to teachers to encourage participation, (4) work experience should be encouraged, and (5) modern techniques such as micro-teaching should be incorporated into in-service training programs.

Mitchell (1972) conducted a study of attitudes, interests, and current practices related to career awareness orientation activities in Oklahoma elementary schools. A random sample of educators was examined by means of a questionnaire to determine their perceptions towards: (1) the basic mission of elementary schools, (2) the extent to which career activities are presently included in the elementary curriculum, (3) the importance of career

activities at the elementary level, and (4) the willingness of teachers and administrators to adjust curriculum to better meet the needs of the students. The research found that there appeared to be no significant differences in the perceptions of educators concerning the importance of career activities, the level of knowledge and basic skills acquired by elementary students, and the value of advisory groups in planning more effective classroom activities.

Research by Holloway (1973) identified the career education competencies considered needed by elementary and junior high school teachers in selected schools of Oregon. The data revealed that there were 14 competencies unique to the needs of junior high school teachers and two competencies unique to the needs of elementary teachers. There were 34 competencies common to the needs of both elementary and junior high school teachers.

Related Curricular Development in Career Awareness

The examination of curricular materials in career awareness established the foundation and basic philosophical beliefs for developing the initial planning phase of the research process. There appeared to be some common principles and theories as to the subject matter content that ought to be included in elementary grade level stratas. However, all of these models, in most instances, were in the experimental stage of program development.

Wernick (1971) developed a resource curriculum project in cooperation with the Division of Vocational and Technical Education, State of Illinois. The resource units were pilot tested in

selected schools in the northern part of the state. All of the ideas developed in this project were tested, refined, transformed and evaluated in a variety of classroom settings.

Portland Public Schools, Area II (1971) designed an Ideas Book for elementary teachers for grades K-6. Purposes, goals, objectives and selected activities serve as the basis for teachers in the implementation of career awareness. This development was followed by Project PIPS (People in Products and Services, 1972) and was to be used in conjunction with the Ideas Book. PIPS provides teachers with suggested philosophical principles, goals, objectives, concepts and activities which are directly related to a variety of careers. During this same period of time, Area I of the Portland Public Schools (1972) developed a similar project.

Seattle Public Schols (1971) produced a curriculum guide for grades K-6. This guide generated suggested goals, objectives, learning activities and resources for elementary teachers to use in carrying out career awareness programs. This guide also included the rationale and philosophical bases for career education.

Arentzen, et al. (1972) developed a similar vocational education project in cooperation with the Washington State Coordinating Council for Occupational Education. One section of this project offers specific alternatives for implementing career awareness programs.

Severance and Wells (1972) have conducted a series of educational television productions in career awareness. These have been produced and directed under the auspices of KCTS-TV, Channel 9,

Seattle, Washington. Their guide is a compilation of the programs conducted during 1971-72, and provides some excellent suggestions for grades one and two available for elementary teachers. This program is being continued for 1972-73, and has met with adequate success in the Seattle metropolitan area.

The University of Minnesota (1971) designed a curriculum guide for elementary teachers in career education. Among the major concepts for grades four, five and six are: developing a positive self-concept, acquiring the discipline of work, identification with the concept of work as a valued institution, increasing knowledge about workers, increasing interpersonal skills, increasing objectification of self before others and valuing human dignity. Suggested goals, objectives and learning activities were also presented for elementary teacher implementation.

Watertown, South Dakota (1971) developed a project which entails a philosophical basis for career development; it examines the programs being accomplished in other states, and there is one section which pertains specifically to the elementary career awareness development.

Illinois (1970) has prepared a comprehensive annotated bibliography on career development; the areas included in this project were: computer-based guidance systems, models and techniques for career guidance, career development conferences, experimental programs, exemplary programs, curriculum, gaming, simulation, career guidance kits, measuring vocational behavior and approaches for providing occupational information.

Adams (1972) conducted an EPDA project in the cities of Richland, Pasco, Finley and Kennewick, Washington, which integrates career awareness into subject matter disciplines. This project developed 13 key concepts of career awareness and they are as follows: (1) people work, (2) there are many different kinds of work, (3) individuals differ in interests and abilities, (4) all jobs are important, (5) one job may contain multiple tasks, (6) work has different kinds of rewards, (7) not all work produces money, (8) some careers availability is limited by geographical location, (9) an occupation or career is that which one selects as a means of earning money, (10) selection of a career influences life style and vice versa, (11) performance of work results in products and/or services, (12) the function of a society or business is related to and dependent upon the contributions of workers, and (13) leisure time should be considered in choosing a job.

Pleasant Hill (1972), Springfield (1971) and Tigard (1972), under direction of the Oregon State Department of Education, Career Education, developed teacher guides for implementing career awareness in the elementary schools of the past-mentioned cities. These curriculum guides include goals, objectives, learning activities and philosophical foundations for carrying out career education.

Other states and school districts have prepared curricular materials to facilitate the implementation of career education, and specifically, the design of systems to carry out career awareness at the elementary grade levels. Major movements and

developments have taken place to stimulate and promote the growth and/or direction of career education; and most school systems, whether small, medium or large in size, are generating a philosophical framework for the implementation of career education goals and objectives.

Related Literature on Delphi Technique

The Delphi technique attempts to identify, through a series of applications to panel members, their very best intuitive judgment concerning goals, objectives, priorities, needs, beliefs, values, and opinions without the panel members engaged in group confrontation. The present study applied the Delphi method in determining and identifying need statements in personnel development for elementary teachers for Seattle and Portland fourth, fifth and sixth grade teachers.

Mansfield (1971) made reference to the need for a systemitized approach in assessing the thinking of the nation's scientific leaders. The National Academy of Sciences prepared a report for the Science and Astronautics Committee entitled "Applied Science and Technical Progress." In discussing the ways in which non-technical legislators and decisionmakers can become informed about the consequences of technology, the report stated:

> Congress should not attempt to second-guess the experts on technical appraisals, but it does have the responsibility to convince itself that the experts have asked themselves the right questions, especially concerning bottleneck problems. It is also important to be aware of certain biases. For example, technologists

> already committed to a particular line or effort tend to be oversanguine, to minimize difficulties and underestimate costs. On the other hand, scientists often tend to be overconservative about technological developments and to call for more research. Often they underestimate the applicability of the science that they themselves have developed. There is a universal tendency to be overoptimistic about technical progress in the short run, but too conservative about the long range future.
>
> In appraising the situation, it is important for Congress to listen to the skeptics as well as the enthusiasts, and to ask the enthusiasts to answer the arguments of the skeptics. Laymen can learn a great deal from the confrontation of experts even when they do not understand the details. Especially in applied science and technology, priorities and goals can be established only through a multidimensional interaction between scientists, technologists, public servants and the general public (p. 523).

Science-based organizations attempt to forecast the impact of technological advances which affect the economic productivity of the nation. Forecasts of these impacts of particular organizations seem to be more along the lines of guesswork than a pure science. The National Academy of Science, in its Delphi study, determined the following future advances of technology by the end of the twentieth century: (1) demonstration of desalination plants capable of producing water economically for agriculture, (2) commercial availability of a large number of new materials for ultralight construction, (3) widespread use of automobile engines, fuels, or accessories enabling operation without harmful exhaust, (4) widespread existence of regional high-speed transportation systems, (5) availability of reliable weather forecasts fourteen days in advance for local areas, (6) laboratory demonstration of continuously controlled thermonuclear power, (7) economical

disposal of solid wastes, or laws inhibiting use of products that do not decay, (8) techniques of cultivating the ocean that yield at least 20 percent of the world's calories, (9) laboratory solution of the problem of the body's rejection of transplanted tissue, (10) development of immunizing agents to protect against most bacterial and viral diseases, (11) creation in the laboratory of a primitive form of artificial life, (12) demonstration of an implantable artificial heart with a power source of long duration, (13) discovery of the factor or factors that give rise to leukemia, (14) capability of fertilizing a human ovum in vitro and implanting it in a surrogate mother, and (15) significant contributions of microbial systems to world food supplies.

Helmer (1960) states that the Delphi method is a new epistemological approach to the inexact sciences, which includes applied physical sciences, such as engineering and medicine, as well as most of the social sciences. The purpose of all science is to explain past events and to predict future ones in an objective manner. While explanation and prediction have the same logical structure in the exact sciences, this is not so in the in-exact sciences. This fact leads to the development of specifically predicative instrumentalities in these fields and to various methodological innovations. Among these are the systematic employment of expert judgment and the use of pseudoexperimentation, involving simulated processes, and in particular, operational gaming.

Dalkey and Rourke (1971) conducted a study on the experimental assessment of Delphi procedures with group value judgments. Two groups of students from UCLA were asked to generate and rate lists of value categories that they considered important to higher education and the quality of life. Analyses showed that: (1) distributions were generally single peaked and roughly bell-shaped, (2) the correlations between different groups and different rating methods were high, and (3) the number of changes and degree of convergence for value judgments were comparable to similar indices for factual judgments. The experiment supported the conclusion that Delphi procedures are appropriate for processing value material as well as factual material.

Dunham (1971) conducted a Delphi study in establishing guidelines for developing a community college teacher education program in Oregon. Procedures used in the study included identifying apparent critical issues in related literature and securing judgments from two panels of national and state authorities on the importance of these and other issues in planning and developing a preservice preparation program for community college teachers. Findings of the study were based primarily upon pooled data from panels of experts. Agreement within and between panels on individual items were analyzed, and comparisons were made to assess congruity with issues extracted from related literature. There were 12 major guidelines developed by the Delphi panel.

Dalkey (1969) conducted an investigation of group opinion. This study applied ten experiments using over 150 university

students. Questions related to almanac-type information. Results showed that controlled feedback, compared with face-to-face discussion improved the accuracy of group estimates, thus validating the use of Delphi techniques in areas of partial information. Insight was gained into group information processes. A meaningful estimate of the accuracy of a group response to a given question can be obtained by combining individual self-rating of competence on that question into a group rating. Adding this result to an observed relationship between accuracy and standard deviation scores to the products of a Delphi exercise.

Helmer (1966) provides a description of the Delphi technique as a method for the systematic solicitation and collation of expert opinions, and its applications to educational planning. Applications of the Delphi technique were carried out to identify long-range forecasting to proposals for innovations in educational methods and budget allocations.

Uhl (1970) conducted a Delphi study on identifying college goals. This study included administrators, community, faculty, advisory councils, alumni, students, trustees and parents in the collection of data. Delphi members were asked to respond to a series of questionnaires relating to college goals. A five point Likert scale was used in collecting responses. Three rounds of the Delphi method identified the following as being most important: (1) financial soundness, (2) intellectual development, (3) vocational preparation, (4) graduate professional training,

(5) research, (6) local and regional services, (7) self study and planning, and (8) esprit and quality of life.

Weaver (1971) states that although the Delphi technique was originally intended as a forecasting tool, its more promising educational application seems to be in the following areas: (1) a method for studying the process of thinking about the future, (2) a pedagogical tool or teaching tool which forces people to think about the future in a more complex way than they ordinarily would, and (3) a planning tool which may aid in probing priorities held by members and constituencies of an organization.

The review of the previous mentioned research studies and literature provided the necessary information for designing the operational research procedures in conducting this study. It proved to be most beneficial in gaining consensus from experts in career awareness as to what the possible in-service development needs might be for elementary school teachers in Portland and Seattle public schools. The major goals and objectives were identified for career education as a result of this review.

Related Literature on Advisory Committees

Since the application of advisory committee persons was used in the experimental groups of this study, it was essential to review the literature as to the purposes and effectiveness of their involvement in the educational spectrum. Advisory committees vary in purpose; all states are required to maintain vocational advisory committees in administering state plans for vocational

education. This study is primarily concerned with the effectiveness of advisory committees at the local levels of education and particularly their implications towards elementary teacher decision-making as it relates to personnel development needs.

Krebs (1965) states that the primary purposes of advisory councils or committees are:

1. To provide an effective means of two-way communication between a board of education and the general public.
2. To provide an effective means for utilizing the talents and abilities of persons in the community in solving school problems.
3. To provide personnel for more thorough study of various school problems than can be made available by a board of education with its limited manpower.
4. To mobilize the force of an informed public opinion behind actions needed for developing and maintaining sound, progressive educational programs for all the people of a community.
5. To make unnecessary the formation of special-interest pressure groups within the school district to influence school policy (p. 1).

Advisory committees might be utilized in a variety of educational encounters; this study limited the application of advisory personnel to the area of teacher decision-making. The variables of their influence on elementary teacher decision-making were included in all experimental groups for both Portland and Seattle school districts.

McKinney (1969) carried on an investigation which measured citizen's perceptions and professional educators' expectations of vocational advisory committee members. Data analyses included the use of chi square one-way analysis of varience. An 82.5 percent

response yielded these findings: (1) generally, the respondents were young to middle age, were well educated, but had limited experience in vocational education courses and with advisory committees, (2) age of respondents, years enrolled in high school vocational education courses, and college courses taken in administration, philosophy, or teaching of vocational education were most important background variables associated with differences of opinion, and (3) several differences of opinion were found. The findings suggest that educational programs for both educators and committee members would improve understanding.

Korb (1972) and Reid (1972) conducted similar studies on the use, effectiveness and role of advisory committees for industrial education and state-wide advisory councils for vocational and technical education.

The American Vocational Association (1969) developed a guide for vocational education personnel; this publication includes: the background and role of committees, functions, membership, operation, school representation, and other significant concepts pertaining to the advisory committee utilization.

Through the review of literature and research, this investigation made every effort to obtain the best possible advisory committee members from each city. Both districts were extremely cooperative in providing active committee persons to function with the experimental groups.

CHAPTER III

DESIGN OF RESEARCH PROJECT

Through the review of related studies and literature, contributions were made in the design of collecting the necessary research information for determining professional in-service teacher education needs in career awareness. This segment of the investigation includes: financial investment, the dependent variable, rationale of the design, preparation of the need statements, statistical design, selection of the sample, the data collection process and the analysis of data.

Financial Investment

Procurement of financial support was necessary in conducting this research investigation. The proposal was submitted to the Oregon Board of Education, Career Education and the Washington State Coordinating Council for Occupational Education. Upon their approval of funding for the project, the research consortium was put into action.

The research contracts from Oregon and Washington are contained in Appendix A, and the research consortium budget is listed in Appendix B. Funding for the research project was provided through the National Higher Education Act, Educational Professional Development Act, Part F, Vocational Education. Portland and Seattle Public Schools also contributed to the funding of the project. Computer time for the analysis of data was provided by Oregon State University.

Respondents were directed to address themselves to the need statements generated by the Delphi panel; they were asked to score, according to their very best professional judgment, need statements which they believed to be considered important or not important to the professional in-service development of elementary teachers in career awareness. Each of the eighty-four need statements constituted the dependent variable of the research investigation. Fourth, fifth and sixth grade teachers from Portland and Seattle public schools participated in responding to the professional in-service need statements on a five-point Likert scale. The List of Need Statements is contained in Appendix C, and these need statements were reacted upon independently for a total of 84 dependent variables.

The elementary teachers in the study were asked to sort through need statements and list the top ten priorities which they believed to be the most important in meeting their professional in-service development.

Rationale of the Design

Bosley (1969) believes that existing in-service education programs are based on the assumption that the completion of pre-service training and the bestowal of a teaching credential creates a lifetime of professional competence and that any inadequacies in the teacher's pre-service training will leave a lifetime of irremedial professional handicaps. The present comparmentalization of pre-service and in-service education must be replaced by a new

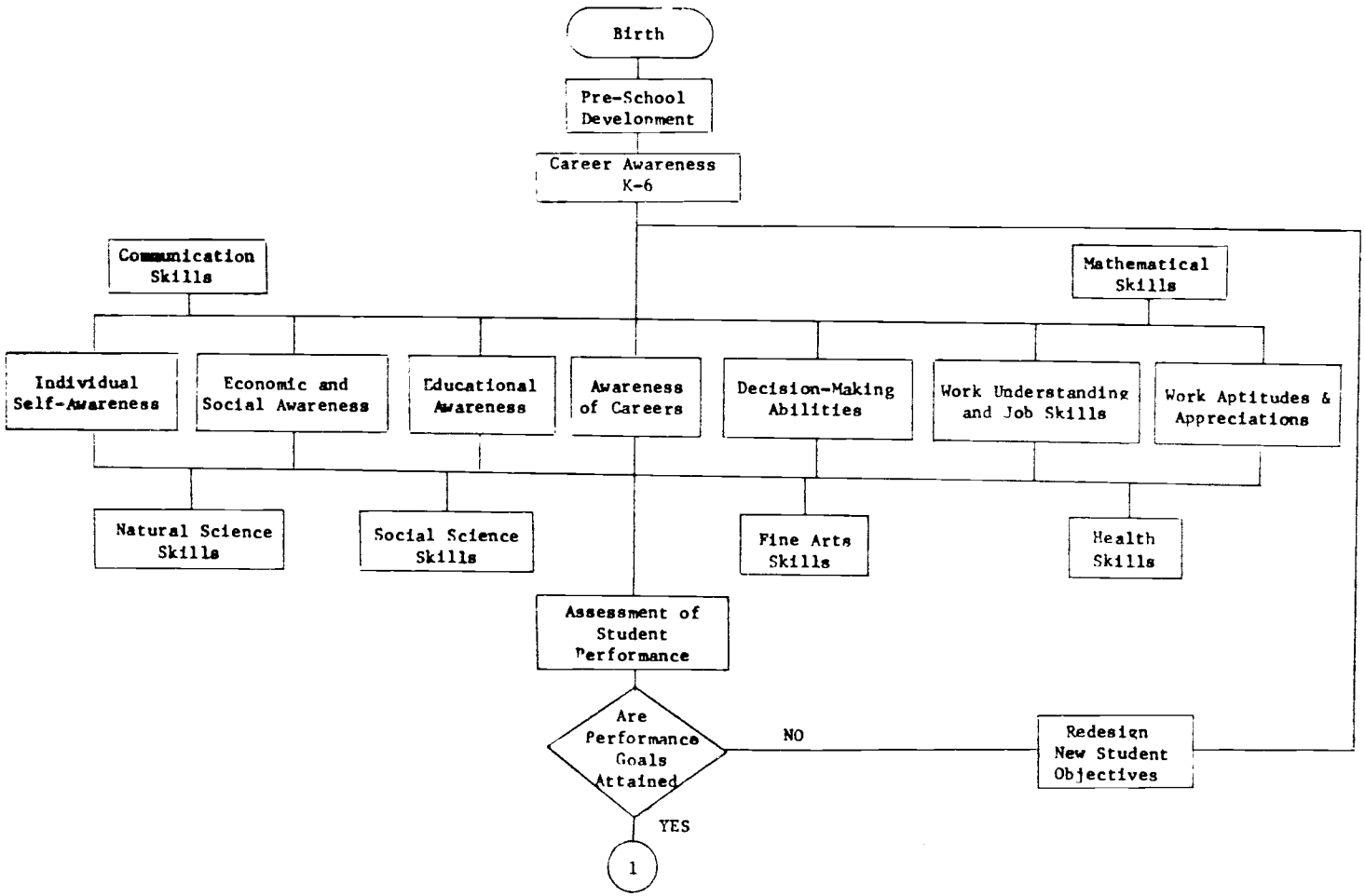
perspective which views the intellectual and practical development of educators as occuring along a continuum beginning with the decision to enter the teaching profession and ending only upon permanent retirement. Career, vocational and occupational education assumes that educational organizations, and specifically public schools, become more functional in meeting their goals and objectives through the inclusion of effective in-service personnel development programs.

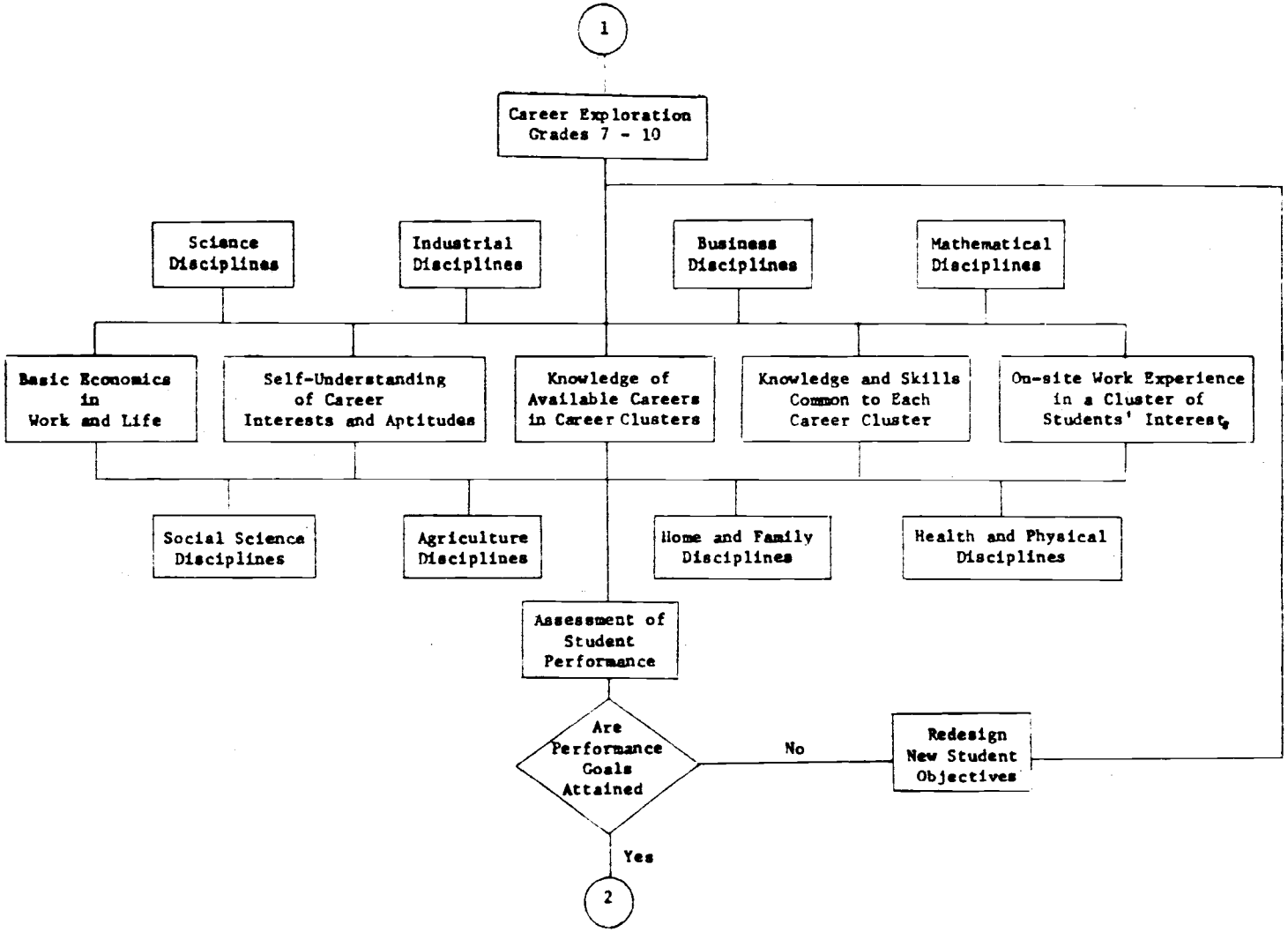
Figure 3 provides a model for a comprehensive career education system for public schools. This paradigmatic schema systematizes the functions of career education at the various age stratas from birth to high school termination. The present research investigation is directly concerned with the areas of individual self-awareness, economic and social awareness, educational awareness, awareness of careers, decision-making abilities, work understanding and job skills, and work aptitudes and appreciations. It also considers other areas of interest pertaining to career awareness for elementary teacher personnel development.

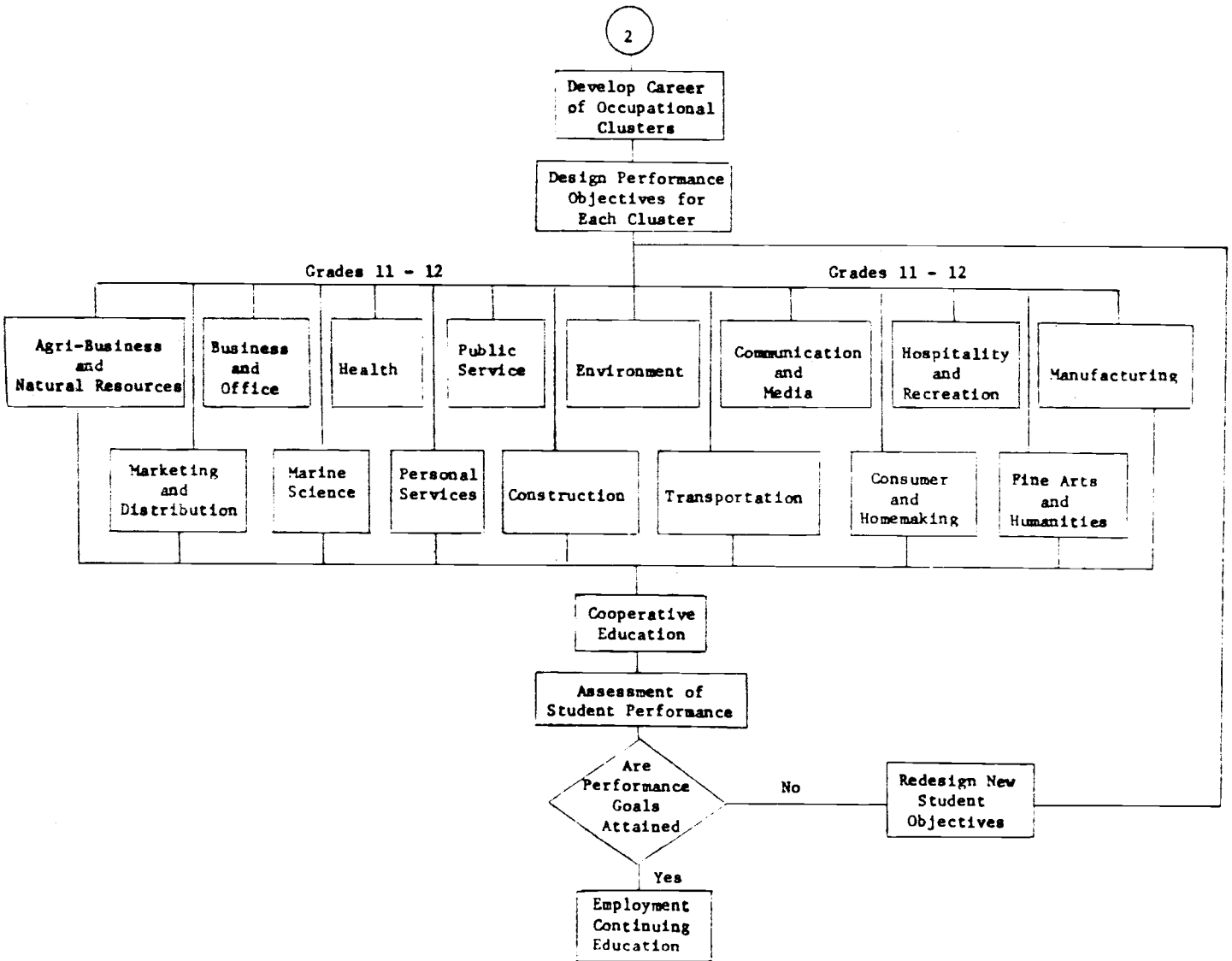
Marland (1971) and Peterson (1972) believe that the previously mentioned career awareness functions are correspondingly integrated into the subject matter disciplines of communication skills, natural science skills, social science skills, fine arts skills and health skills. Career awareness compliments these subject matter skills rather than acting as a competitor in educational goal attainment.

Assessment of student performance is an integral component of each child's career and educational development. Specific performance criteria must be established in the assessment process. Once

A COMPREHENSIVE K-12 CAREER EDUCATION SYSTEM




1
Career Exploration
Grades 7 - 10
Science Disciplines
Industrial Disciplines
Business Disciplines
Mathematical Disciplines
Basic Economics in Work and Life
Self-Understanding of Career Interests and Aptitudes
Knowledge of Available Careers in Career Clusters
Knowledge and Skills Common to Each Career Cluster
On-site Work Experience in a Cluster of Students' Interest
Social Science Disciplines
Agriculture Disciplines
Home and Family Disciplines
Health and Physical Disciplines
Assessment of Student Performance
Are Performance Goals Attained
No
Redesign New Student Objectives
Yes
2


2
Develop Career of Occupational Clusters
Design Performance Objectives for Each Cluster
Grades 11 - 12
Grades 11 - 12
Agri-Business and Natural Resources
Business and Office
Health
Public Service
Environment
Communication and Media
Hospitality and Recreation
Manufacturing
Marketing and Distribution
Marine Science
Personal Services
Construction
Transportation
Consumer and Homemaking
Fine Arts and Humanities
Cooperative Education
Assessment of Student Performance
Are Performance Goals Attained
No
Redesign New Student Objectives
Yes
Employment Continuing Education

students have attained a level of competency in one educational spectrum, they move on to the next level. Thus, it is anticipated that all students become functional and participating persons in the educational environment and the world of work.

Ascertaining the professional in-service development needs of elementary teachers becomes a critical component in making the educational system a functional and viable organization. The present study identifies those functional areas of career awareness which elementary teachers believe to be significant in attainment of educational goals and objectives for career awareness.

Goldhammer (1971a) believes that career exploration includes grade levels seven through ten. The primary functions of career education at this level are: basic economics in work and life, self-understanding of career interests and aptitudes, knowledge of available career clusters, knowledge and skills common to each career cluster and on-site work experience in a cluster of student's interest.

These common functions of career exploration are integrated into the subject matter disciplines of: science, industrial, business, mathematical, social science, agriculture, home and family life and health and physical. Career education begins to provide all students with the opportunity to explore, in greater depth, the world of work; and at the same time it attempts to make education more functional by integrating career education concepts into the present construct of the curriculum. Assessment of student performance should be conducted on a systematized basis in order for students to move into the next level of career education.

Career Education: A Handbook for Implementation (1972) points out that in senior high school, students begin to identify a specific area of interest in one or more of the major occupational clusters. The present research provides reference to the fifteen major occupational clusters designed by the United States Office of Education. These major occupational clusters are: agri-business and natural resources, business and office, health, public service, environment, communication and media, hospitality and recreation, manufacturing, marketing and distribution, marine science, personal services, construction, transportation, consumer and homemaking, fine arts and humanities.

Cooperative education should be an integral segment of each major occupational cluster. Each student should be provided the opportunity to understand and participate in the world of work by actually performing in one of the clusters. It is assumed that, by being engaged directly, students perform the actual operations for which they have been prepared; and that students begin to understand the importance of their economic and social contributions to society and the family.

The present investigation is concerned with grades K-6, but it is of the utmost importance that an understanding of the total comprehensive career education program in the publis schools be a part of every teacher throughout grades K-12. This design could also be used as a delivery system for community colleges, vocational-technical institutes and colleges or universities.

Replications of this study might be carried on in each one of the major educational strata. Professional development programs cannot be effectively planned and developed unless there is an assessment of the needs for teachers. This research model is concerned with such an assessment.

Preparation of Need Statements

The preparation of need statements was a result of the direct expert intuitive judgment and effort put forth by the Delphi panel. The Delphi panel reacted to, and generated additional statements, through a series of three Delphi rounds. Three different questionnaires were administered to panel members for their consideration and reaction.

Initial need statements were obtained from Gysbers (1970), Goldhammer (1972b) and University of Minnesota (1971). These sources provided, along with the review of other related career education literature, the philosophical and conceptual basis for the Delphi method.

Delphi panel members were selected to serve from the following levels of education:

1. One teacher educator from the State of Oregon.
2. One expert state administrator from the Oregon State Department of Education, Career Education.
3. One elementary principal from the Portland Public School District.

4. Two elementary teachers from fourth, fifth, and sixth grades in the Portland Public School District.
5. One teacher educator from the State of Washington.
6. One expert state administrator from the Washington Coordinating Council for Occupational Education.
7. One elementary principal from the Seattle Public School District.
8. Two elementary teachers from fourth, fifth and sixth grades in the Seattle Public School District.

In all, a total of ten expert panel members contributed to the research method; the criteria for selecting Delphi panel members included:

1. The panel participants should have a comprehensive understanding of career awareness as it exists in its present state of being.
2. The panel participants should have had at least one year of direct experience and contact with career awareness programs.
3. The panel participants should be selected on the very best judgment of the persons doing the selecting.

Appendix D contains a letter sent to key administrative personnel in Oregon and Washington; these administrators selected the Delphi panel members for this investigation. The Delphi panel members are listed in Appendix E.

There were eight major areas presented in the initial round of the Delphi technique and they are as follows: (1) individual self-awareness, (2) economic and social awareness, (3) educational awareness , (4) awareness of careers, (5) decision-making abilities, (6) work understanding and job skills, (7) work aptitudes and appreciations, and (8) other areas. These eight major functions of career awareness remained constant throughout the study. The letter and one segment of the first round is contained in Appendix F. Those items which gained consensus from Round One are shown in Appendix G, and these were included in the mailing of Round Two to the Delphi panel members.

In determining consensus for Round One of the Delphi technique, need statements acquired not less than seven or more acceptance ratings in order to qualify for final inclusion.

Round Two of the Delphi technique included those statements which did not gain consensus from the first round; it also included the new statements generated from Delphi panel members in Round One. The results were tabulated so that respondents or panel members could compare themselves with other panel members on scoring items in Round One. The data were given for each need statement, and a red (X) was placed for each panel member at the point of their judgment so that they could compare their judgments with other panel members.

Appendix I contains the questionnaire administered in Round Three of the Delphi procedure; it also provides the analysis of items from Round Two. Those items which acquired a mean score of 4.0 or better were considered as gaining consensus in Round Two, and they

were placed in the final production of the Card Deck. In Round Three, Delphi panel members either accepted or rejected need statements, and all but one item was rejected in the final round. These statements were also rejected in the first two rounds.

The Delphi technique was most helpful in generating the necessary need statements for the research. The revisions and additions of new statements provided a comprehensive search for what elementary teachers might consider to be important or not important in a way of in-service professional development. Eighty-four statements met with concensus though three rounds of the Delphi technique, and the Q-Sort Card Deck contained these 84 items for elementary teachers to consider in the final phase of collecting the necessary data.

Statistical Design

There were 160 elementary teachers representing the fourth, fifth and sixth grade levels participating in the study; 80 of these teachers were from the Portland Public Schools and 80 from the Seattle Public Schools. In addition to the 160 elementary teachers from these two metropolitan cities, there were 20 advisory committee members who participated in the experimental groups. The statistical design, therefore, centered around the seven hypotheses, which related to elementary teachers, metropolitan cities, demographic areas within the cities, and the treatment effect of advisory committee members.

The primary sources of information applied to the study were Courtney (1965), Burnham (1971), Crawford (1967) and Ferguson (1967). These studies assisted in various ways in projecting the necessary

research methodology. Secondary sources of information were Clark and Schkade (1969), Balsley (1970), Glass and Stanley (1970) and Lindquist (1965).

The present investigation utilized a fixed statistical model, and the management of the statistical procedures applied a three-way analysis of variance technique.

The basic experimental design for the research model was a 2 x 2 x 2 factorial design, with two levels of the geographical city factor, two levels of the individual city demographic area factor, and two levels of treatment factor. The treatment factor represented the 20 advisory persons who participated in the experimental groups.

There were seven null hypotheses tested in the statistics of this study:

1. There is no significant city effect.
2. There is no significant demographic effect.
3. There is no significant treatment effect.
4. There is no significant interaction effect between city and demographic.
5. There is no significant interaction effect between city and treatment.
6. There is no significant interaction effect between demographic and treatment
7. There is no significant interaction effect between city and demographic and treatment

The arrangement of the statistical design is provided in Table I, which lists the tests of significance for primary (main) effects and subsidiary (interaction) effects for the null hypotheses.

The critical F-ratio utilized in each individual case for purpose of rejection was the tabular F where degrees of freedom = 1, 152 and $\alpha = .01$.

Selection of the Sample

The population universe for this study included elementary teachers from the fourth, fifth and sixth grade levels in Portland and Seattle public schools. Teachers were randomly selected from each of the two districts. Portland School District is administered by a decentralized form of management, and there are three different management areas which were included in the study. The procedure for collecting the data from the Portland sample is contained in Appendix J, and a letter, contained in Appendix K, explains the sampling technique for both Portland and Seattle.

The sample population for this study contained an aggregate of 160 elementary teachers; 80 from Portland and 80 from Seattle. One sample of 20 teachers from each respective city constituted the average and above average income area demographic groups. These groups were identified as control groups and they were coded as Portland Group A and Seattle Group A. Another random sample of 20 teachers was selected from each city from average and above average income demographic areas. These were identified as experimental groups and were coded as being Portland Group B and Seattle Group B.

TABLE I

ANOVA ARRANGEMENT (3-WAY)

2 x 2 x 2 Design

Sources of Variation	Degrees of Freedom	SS	MS	F
City	1	A	A/1	MS error / MS City
Demographic	1	B	B/1	MS error / MS Demographic
Treatment	1	C	C/1	MS error / MS Treatment
City X Demo.	1	D	D/1	MS error / MS C X D
City X Treat.	1	E	E/1	MS error / MS C X T
Demo. X Treat.	1	F	F/1	MS error / MS D X T
C X T X D	1	G	G/1	MS error / MS C X T X D
Error	152	H	H/152	
Total	159	I		

A random sample of 20 elementary teachers from high poverty and minority area elementary schools were selected from each city to participate in control demographic area groups. These two groups were coded as Portland Group C and Seattle Group C. Correspondingly, there were two experimental groups from high poverty and minority demographic areas, and these were coded as Portland Group D and Seattle Group D.

Advisory committee members were selected by the administrative personnel from each city. These committee persons must have had experience in serving on a local career education advisory committee. The list of advisory committee members from each city is contained in Appendix L. The twenty advisory committee members from the two cities provided the experimental treatment effect within the experimental groups.

The Data Collection Process

The data for this research was accumulated through 160 elementary teachers responding to the Q-Sort Card Deck which was validated through the Delphi panel. The Card Deck provided the general instructions, 84 need statements and priority ranking card.

Upon the selection of individual elementary teachers from each city, a letter, contained in Appendix M, was mailed to their respective schools. Appendix N and O are samples of the letters mailed to advisory committee members and final participating elementary teachers.

Control groups responded to the card deck individually in a personal interview arrangement. Experimental groups reacted to the Card Deck on a group basis. Each statement was read from the Card Deck by the research project director. Upon the reading of the individual item, it was directed to the advisory committee members for their judgment and reaction as to the importance of the specific statement. Elementary teachers were also involved in the discussion of items. Upon the termination of discussion from the advisory committee and teacher group, each teacher assigned individual ratings as to the need of the particular statement for in-service personnel development.

The sampling design for collecting the data from the two cities is detailed in Table II. Each research group consisted of ten elementary teachers in control sessions. Experimental sessions included ten elementary teachers and five advisory committee members.

The research used a modified motivational projective technique in the experimental sessions. Teachers were required to give additional thought processes to items before applying their individual ratings to specific card items.

Research sessions were conducted during the late afternoon; this seemed to be the most appropriate time for getting both elementary teachers and advisory committee members together at one time during the day.

All experimental sessions were video taped. This proved to be of assistance in reviewing and analyzing the research procedures, and provided the technology for other researchers to view in case

TABLE II

SAMPLING MATRIX

	Control Group Average and Above	Experimental Group Average and Above	Control Group Poverty and Minority	Experimental Group Poverty and Minority
	A	B	C	D
Seattle	A1 S = 10	B1 BI5 S = 10	C1 S = 10	D1 BI5 S = 10
Seattle	A2 S = 10	B2 BI5 S = 10	C2 S = 10	D2 BI5 S = 10
Portland	A3 S = 10	B3 BI5 S = 10	C3 S = 10	D3 BI5 S = 10
Portland	A4 S = 10	B4 BI5 S = 10	C3 S = 10	D4 BI5 S = 10

A, B, C and D are the Seattle and Portland Groups.
S represents the group size of each sub-section for data collection procedures.
BI represents the number of advisory committee members for treatment effect

this model is replicated in other studies at other levels of the educational stratas. The video tapes were retained following the research.

Analysis of Data

In its original format, the Card Deck was arranged according to major career awareness philosophical concepts and functions. Before the final Card Deck was prepared, the cards were staggered so that biases would not set in on any one major sector of the research design. Cards were coded in the left-hand corner by assigning the alphabet letters "A" through "H" to each major function. These cards were also prepared in four different colors (pink, blue, green, and yellow) which represented the four major demographic groups.

When tabulating the data, the Card Deck was placed back in its original order consisting of eight major functions in career awareness. Those eight were: (1) individual self-awareness, (2) economic and social awareness, (3) educational awareness, (4) awareness of careers, (5) decision-making abilities, (6) work understanding and job skills, (7) work aptitudes and appreciations, and (8) other areas.

The data collected from sixteen sub-groups were scored on a specially designed tabulation instrument. This instrument was arranged so that the eight major functions of career awareness were arranged in their original format order. From these tabulated

data sheets, information was transferred to a data processing card deck.

Table III provides the arrangement for analysis of data of all group components for the three-way analysis of variance. The data deck provided the necessary information for the computer program to compute the necessary analysis tests. This study included the testing of primary and subsidiary effects covering seven hypotheses. The study identified those in-service personnel development needs considered to be important to all groups, those considered to be important to specific groups, and those that were considered not important for professional growth of experienced elementary teachers.

A priority matrix was possible through the data provided on the last card of the Q-Sort Card Deck. Teachers ranked their preferences from first priority to the tenth priority according to what they believed to be most significant to their needs. This provided the research project with the necessary information for identifying top priorities.

Statistical tables and matrices are available in Chapter IV and in the appendices of this study. There is also to be forthcoming a publication of the results of this study in a condensed form on record with the Oregon Board of Education and Washington State Coordinating Council for Occupational Education. This was one of the requirements of the research consortium contracts.

TABLE III

ARRANGEMENT OF DATA FOR STATISTICAL ANALYSES OF THREE-WAY ANOVA

	Average and Above Average Demographic Areas		Poverty and Minority Demographic Areas		
	Portland	Seattle	Portland	Seattle	Total
Control Groups	20	20	20	20	80
Experimental Groups	20	20	20	20	80
Total	40	40	40	40	160

CHAPTER IV

PRESENTATION AND ANALYSES OF FINDINGS

Included in this chapter are the findings of the research project relating to the responses of 160 Portland and Seattle elementary teachers. Analysis of data is presented with tests of significance for the seven hypotheses cited earlier in the study. The presentation and analyses of data are divided into two major sections. Section one pertains to the priority rankings of in-service development for elementary teachers. The second section provides primary mean scores and the acceptance or rejection of the three primary hypotheses. This section also examines the subsidiary interaction hypotheses and determines the acceptance or rejection of the two and three factor interactions.

Analysis of Priority Rankings

Table IV provides a list of the top twenty priorities, and the data for determining the priority rankings of the 160 elementary teachers were computed from the last card of the Q-Sort Card Deck. Appendix P contains the results of the responses from elementary teachers. The formula for determining each statement's priority value is listed at the bottom of the priority matrix.

Appendix C contains the original Q-Sort Card Deck as administered to respondents, and it was from this arrangement that teachers made their decisions as to what needs were most important.

TABLE IV

ANALYSIS OF 84 NEED STATEMENTS IN RELATION TO PRIORITY RATINGS OF 160 FOURTH, FIFTH AND SIXTH GRADE TEACHERS AS TO IN-SERVICE EDUCATION NEEDS IN CAREER AWARENESS FOR PORTLAND AND SEATTLE SCHOOLS

Item No.	Top Twenty Priorities	Priority Value
3.	Workshops need to be developed which relate out-of-school educational experiences (field trips, resource people, parents, etc.) to career awareness programs.	381
23.	Developmental programs need to be designed which provide elementary teachers with the opportunity to create hands-on activities related to careers so that learning becomes relevant.	334
80.	All elementary teachers need professional improvement in the development to plan and implement strategies for increasing the positive self-concept of all students.	324
54.	Elementary teachers need professional improvement which will enable them to assist students in knowing themselves, and to be able to accept and respect their own uniqueness in terms of past developments. As change occurs in students, they will understand the results of their learning, growth and maturation.	266
12.	Through in-service experiences, elementary teachers need to discover methods of demonstrating to students the importance of education as a life-long process and the relationships of continuing education to occupational success and satisfaction.	264
39.	In-service programs must be conducted on a continuing basis for integrating career awareness into the curricula of mathematics, reading, writing, science and social studies.	246

TABLE IV CONTINUED

Item No.	Top Twenty Priorities	Priority Value
6.	Elementary teachers need teaching strategy improvement which will assist them in preparing students to recognize and understand the advantages and responsibilities associated with working independently, as a member of a team and being supervised or directed.	244
7.	In-service development needs to be created whereby other elementary teachers, who have had success in teaching work appreciations and developing aptitudes in students, are provided opportunities to relate these strategies to other elementary teachers.	235
77.	Federal, state, and local resources (physical, human and financial) need to be allocated at a greater level of priority in order to accomplish long-range and short-range professional improvement for elementary teachers and career awareness.	231
43.	Elementary teachers need professional improvement which will assist them in teaching students to recognize, that once a task is accepted, there are certain responsibilities to himself, employer and fellow workers.	224
75.	Elementary teachers need continuous development which will assist them in relating career awareness and the cognitive domain areas of learning (communication skills, mathematic skills, natural science skills, social science skills, fine arts skills and health skills) in preparing elementary students to function effectively in the world of work.	214
59.	Elementary teachers need in-service improvement which will assist them in preparing students to recognize the personal differences in others. By being able to do this, students will develop tolerance and flexibility in understanding interpersonal relationships.	205

TABLE IV CONTINUED

Item No.	Top Twenty Priorities	Priority Value
10.	In-service programs should be developed which assist teachers in creating student information systems relating to self-appraisal, identifying individual strengths and limitations.	201
14.	Elementary teachers need in-service which will assist them in teaching students to understand that the decision-making process includes responsible individual or group action in identifying alternatives, selecting the most appropriate courses of action which are consistent with the values and goals in taking necessary steps in implementing action.	183
1.	Elementary teachers should be provided a continuous personnel improvement program which emphasizes the necessary teaching competencies for working with students with special needs as it relates to individual self-awareness.	179
15.	Through in-service education, elementary teachers should be prepared to help students understand the influence of workmanship and skill upon the materials, processes, and products of business and industry.	163
8.	In-service development needs to be conducted on a continuing basis for elementary teachers and school administrators which increases community and professional involvement, interaction and communication for implementation of effective career education.	

TABLE IV CONTINUED

Item No.	Top Twenty Priorities	Priority Value
42.	Fourth, fifth, and sixth grade teachers need a continuous program of interaction between grade levels on articulation of teaching content. This will assist them in preparing students to develop the educational and occupational competencies which are important for moving on to the next stage of preparation and entry into an occupational area of interest.	155
5.	Teachers need professional improvement in order to be confident enough to let a child live with the consequences of his/her decision-making.	149
22.	Some elementary teachers may need work experience in order to be effective in relating work, life and family roles to students.	149

Analyses of Primary Mean Scores and Seven Hypotheses

Responses for the 84 dependent variables are available in Tables V through XII. These tables provide the primary mean scores for the three primary main effects. These represent the mean scores for: (1) Portland and Seattle, (2) control and experimental treatment groups, and (3) average and above average demographic groups and poverty or minority demographic groups.

Also included in the tables are indications of the acceptance or rejection of primary and subsidiary hypotheses. Appendix Q lists the computed "F" ratio applied for the tests of significance of primary main effects, subsidiary two factor interactions and subsidiary three factor interactions. The tabular "F" statistic for tests of significance is "F" equals 6.81 at the .01 level.

Table V provides the data and analysis of hypotheses for those items pertaining to the major career awareness function for individual self-awareness.

Forty primary main effects were accepted as a result of the significance tests. There were two rejections out of 42 primary tests. The number 2 item was rejected; on this item, Portland's mean score was 4.04 and Seattle's was 3.34. Portland's elementary teachers believed that this item was significantly more important than Seattle's teachers. Item 12 was also rejected; the mean score for the control group was 3.69 and experimental group received a mean score of 3.21. The control group respondents believed that this item was significantly more important than the experimental group.

TABLE V

ANALYSIS OF PRIMARY MEAN SCORES AND NULL HYPOTHESES FOR THREE-WAY ANOVA OF 14 STATEMENTS RELATIVE TO THE NEEDS OF IN-SERVICE EDUCATION IN GRADES FOUR, FIVE AND SIX FOR INDIVIDUAL SELF-AWARENESS*

Need Statements	Primary Mean Scores						Primary Subsidiary						
	$\overline{PY}$	$\overline{SY}$	$\overline{CY}$	$\overline{EY}$	$\overline{ADY}$	$\overline{PDY}$	H1	H2	H3	H4	H5	H6	H7
1. Elementary teachers should be provided a continuous personnel improvement program which emphasizes the necessary teaching competencies for working with students with special needs as it relates to individual self-awareness.	4.10	3.96	4.13	3.94	3.91	4.15	A	A	A	R	A	A	A
2. In-service programs should be developed which assist teachers in creating student information systems relating to self-appraisal, identifying individual strengths and limitations.	4.04	3.34	3.83	3.55	3.79	3.59	R	A	A	A	A	A	A
3. Elementary teachers need in-service development which provides methodology and instructional strategies that stress the importance of student self-understanding in work and life roles.	3.74	3.53	3.74	3.53	3.68	3.59	A	A	A	A	A	A	A

TABLE V CONTINUED

Need Statements	Primary Mean Scores $\overline{PY}$	$\overline{SY}$	$\overline{CY}$	$\overline{EY}$	$\overline{ADY}$	$\overline{PDY}$	Primary H1	H2	H3	Subsidiary H4	H5	H6	H7
4. Elementary teachers need professional improvement which will provide them with in-depth understanding of individual student behavior relating to the nature and existence of the interaction between individual knowledge, self-understanding and career goals.	3.34	3.14	3.30	3.18	3.11	3.36	A	A	A	R	R	A	A
5. Professional improvement of elementary teachers should have some development which directs the major emphasis on the individual self-awareness needs of minority groups and relating this to their specific cultural or ethnic situations.	3.19	3.15	3.26	3.08	3.08	3.26	A	A	A	A	A	A	A
6. Behavioral science programs need to be offered which develop elementary teacher understanding of individual basic needs and processes of acquiring self-fulfillment in life and work.	3.15	3.13	3.24	3.04	3.14	3.14	A	A	A	A	A	A	A

TABLE V CONTINUED

Need Statements	Primary Mean Scores $\overline{PY}$	$\overline{SY}$	$\overline{CY}$	$\overline{EY}$	$\overline{ADY}$	$\overline{PDY}$	Primary H1	H2	H3	Subsidiary H4	H5	H6	H7
7. Elementary teachers need professional improvement which will enable them to assist students in knowing themselves, and to be able to accept and respect their own uniqueness in terms of past developments. As change occurs in students, they will understand the results of their learning, growth and maturation.	3.78	4.15	4.04	3.89	3.89	4.04	A	A	A	R	A	A	A
8. Elementary teachers need professional improvement which is directed towards the understanding and utilization of the role concept as a way for students in learning about themselves in relation to their cultural and living environment.	3.25	3.34	3.28	3.31	3.25	3.34	A	A	A	A	A	A	A
9. Elementary teachers need continuous development and understanding which will assist them in preparing students to understand and recognize the forces of their environment which influences													

TABLE V CONTINUED

Need Statements	Primary Mean Scores PȲ	SȲ	CȲ	EȲ	ADȲ	PDȲ	Primary H1	H2	H3	Subsidiary H4	H5	H6	H7
their development and growth relating to social, economic, educational, cultural and occupational success.	3.41	3.24	3.39	3.26	3.40	3.24	A	A	A	A	A	A	A
10. In-service development should be provided to elementary teachers which will assist them in preparing students to recognize that self-knowledge and understanding is related to a system or set of values which is unique to the individual.	3.24	3.58	3.51	3.30	3.30	3.51	A	A	A	A	A	A	A
11. Elementary teachers and administrators must be prepared to provide paths of excellence leading to all occupational categories; they must not create traditional academic paths of education.	3.58	3.68	3.74	3.51	3.55	3.70	A	A	A	A	A	A	A
12. Elementary teachers need professional development which prepares them to assist students in learning or understanding the importance of establishing personal and relevant career and life goals and objectives based													

TABLE V CONTINUED

Need Statements	Primary Mean Scores PȲ	SȲ	CȲ	EȲ	ADȲ	PDȲ	Primary H1	H2	H3	Subsidiary H4	H5	H6	H7
upon self-understanding of their individual characteristics.	3.53	3.38	3.69	3.21	3.35	3.55	A	R	A	A	A	A	A
13. All elementary teachers need professional improvement in the development to plan and implement strategies for increasing the positive self-concept of all students.	4.01	4.09	4.21	3.89	3.95	4.15	A	A	A	A	A	A	A
14. All elementary teachers need in-service programs which help them relate the personal characteristics and interest of individuals to the work requirements of major occupations.	3.36	3.49	3.45	3.40	3.24	3.61	A	A	A	A	R	A	A

*PȲ = Portland Group Mean, SȲ = Seattle Group Mean, CȲ = Control Group Mean, EȲ = Experimental Group Mean, ADȲ = Average and Above Demographic Group Mean, PDȲ = Poverty and Minority Group Mean, H1 . . . H7 = Primary and Subsidiary Hypotheses, A = Accept, and R = Reject Hypothesis. The critical value of tabular "F" is 6.81 at the .01 level of significance.

Thirty-seven subsidiary two factor interactions were accepted and seven were rejected. All fourteen of the subsidiary three factor interactions were accepted.

Table VI contains 11 statements relating to the major career awareness function economic and social awareness. Out of the 33 primary main effects, one was rejected. Item 19 indicated differences between control and experimental groups. The control group believed that this statement was more important to their needs for professional development than did the experimental group.

There was only one subsidiary two factor interaction rejection and all three factor interactions were accepted.

Table VII lists seven statements pertaining to the career awareness function of educational awareness. Twenty primary main effects were accepted and one rejected. Item 26 was rejected; the average and above average demographic group mean was 4.01 and the poverty or minority demographic group mean was 4.35. Those teachers in schools located in poverty or minority area elementary schools believed this item to be more important than did the average or above average demographic teacher group.

All 28 subsidiary two factor and three factor interactions were accepted for educational awareness.

Table VIII provides the analysis of seven statements for the functional area for awareness of careers. Twenty primary main effects were accepted and one, item 33, was rejected. The control group mean was 3.73 and the experimental group mean was 3.03. Those teachers in control groups scored this item at a significantly greater level of

TABLE VI

ANALYSIS OF PRIMARY MEAN SCORES AND NULL HYPOTHESES FOR THREE-WAY ANOVA OF 11 STATEMENTS RELATIVE TO THE NEEDS OF IN-SERVICE EDUCATION IN GRADES FOUR, FIVE AND SIX FOR ECONOMIC AND SOCIAL AWARENESS*

Need Statements	Primary Mean Scores						Primary	Subsidiary				
	$\overline{PY}$	$\overline{SY}$	$\overline{CY}$	$\overline{EY}$	$\overline{ADY}$	$\overline{PDY}$	H1	H2	H3	H4	H5	H6	H7
15. Elementary teachers need professional improvement in developing an awareness of the necessity of that cultural expertise which would enable a purchasing power earner to expend that purchasing power for the greatest enrichment it can attain.	3.54	3.39	3.51	3.41	3.26	3.66	A	A	A	A	A	R	A
16. In-service programs need to be developed to help elementary teachers relate occupations to the economic and social aspects of the community.	3.54	3.19	3.51	3.21	3.39	3.34	A	A	A	A	A	A	A
17. Elementary teachers need to be provided with professional improvement in which they write and develop learning systems which will assist them in preparing students for economic, social, ethical and moral responsibility to the nation's welfare, growth and development.	3.33	3.11	3.33	3.11	3.25	3.19	A	A	A	A	A	A	A
18. Higher education should provide business and industrial experience on a credit internship basis whereby elementary teachers gain in-depth understanding of economics and social responsibility as they relate to the business-industrial communuity.	3.41	3.40	3.19	3.63	3.34	3.48	A	A	A	A	A	A	A

TABLE VI CONTINUED

Need Statements	Primary Mean Scores $\overline{PY}$	$\overline{SY}$	$\overline{CY}$	$\overline{EY}$	$\overline{ADY}$	$\overline{PDY}$	Primary H1	H2	H3	Subsidiary H4	H5	H6	H7
19. Professional improvement of elementary teachers is needed which assists them in preparing disadvantaged and handicapped students to function effectively in the economic and social environment.	3.43	3.48	3.68	3.23	3.40	3.40	A	R	A	A	A	A	A
20. Elementary teachers need developmental programs which will assist them in preparing students to understand mathematical concepts and the ways these concepts relate to career and life styles.	3.20	3.44	3.35	3.29	3.35	3.29	A	A	A	A	A	A	A
21. Elementary teachers need professional improvement which will assist them in preparing students to understand, and have knowledge of finance and investments, real estate, insurance, savings and interest earnings, so that they might make better use of their occupational earnings.	3.43	3.20	3.30	3.33	3.39	3.24	A	A	A	A	A	A	A
22. Elementary teachers need in-service programs which will assist them in preparing students to understand the interrelationships between personal economics and life styles.	3.26	3.23	3.41	3.08	3.16	3.33	A	A	A	A	A	A	A

TABLE VI CONTINUED

Need Statements	Primary Mean Scores						Primary	Subsidiary				
	$\overline{PY}$	$\overline{SY}$	$\overline{CY}$	$\overline{EY}$	$\overline{ADY}$	$\overline{PDY}$	H1	H2	H3	H4	H5	H6	H7
23. Professional improvement programs are needed to assist elementary teachers in designing career awareness programs which prepare black students to create and design involvement and participation at a greater level in the business and industrial society.	3.30	3.29	3.49	3.10	3.06	3.53	A	A	A	A	A	A	A
24. Professional improvement programs need to be developed which will assist elementary teachers in preparing students to understand the variety of social and economic contributions which are associated with many occupational areas.	3.38	3.36	3.39	3.34	3.31	3.43	A	A	A	A	A	A	A
25. Professional development is needed to prepare qualified instructors to teach in specific areas of careers; this is qualified by success in that career area -- not just teaching about it.	3.86	3.45	3.79	3.53	3.44	3.88	A	A	A	A	A	A	A

*$\overline{PY}$ = Portland Group Mean, $\overline{SY}$ = Seattle Group Mean, $\overline{CY}$ = Control Group Mean, $\overline{EY}$ = Experimental Group Mean, $\overline{ADY}$ = Average and Above Demographic Group Mean, $\overline{PDY}$ = Poverty and Minority Group Mean, H1 . . . H7 = Primary and Subsidiary Hypotheses, A = Accept, and R = Reject Hypothesis. The critical value of tabular "F" is 6.81 at the .01 level of significance.

TABLE VII

ANALYSIS OF PRIMARY MEAN SCORES AND NULL HYPOTHESES FOR THREE-WAY ANOVA OF 7 STATEMENTS RELATIVE TO THE NEEDS OF IN-SERVICE EDUCATION IN GRADES FOUR, FIVE AND SIX FOR EDUCATIONAL AWARENESS*

Need Statements	Primary Mean Scores						Primary	Subsidiary				
	$P\bar{Y}$	$S\bar{Y}$	$C\bar{Y}$	$E\bar{Y}$	$AD\bar{Y}$	$PD\bar{Y}$	H1	H2	H3	H4	H5	H6	H7
26. Workshops need to be developed which relate out-of-school educational experiences (field trips, resource people, parents, etc.) to career awareness programs.	4.10	4.16	4.16	4.10	4.35		A	A	R	A	A	A	A
27. Through in-service experiences, elementary teachers need to discover methods of demonstrating to students the importance of education as a life-long process and the relationships of continuing education to occupational success and satisfaction.	4.05	3.98	4.23	3.80	4.09	3.94	A	A	A	A	A	A	A
28. Elementary teachers need workshops which develop specific course content pertaining to communication skills, computational and reasoning skills, and mastery of content knowledge, as applicable to persons with special needs.	3.39	3.30	3.53	3.16	3.55	3.14	A	A	A	A	A	A	A
29. Short seminars need to be developed which relate in-school educational experiences to career concepts so that students understand these relationships.	3.54	3.24	3.41	3.26	3.33	3.45	A	A	A	A	A	A	A

TABLE VII CONTINUED

Need Statements	Primary Mean Scores $\overline{PY}$	$\overline{SY}$	$\overline{CY}$	$\overline{EY}$	$\overline{ADY}$	$\overline{ADY}$	Primary H	H	H	Subsidiary H	H	H	H
30. In-service programs must be conducted on a continuing basis for integrating career awareness into the curricula of mathematics, reading, writing, science and social studies.	4.04	3.99	4.01	4.11	4.06	3.96	A	A	A	A	A	A	A
31. Elementary teachers need development programs which assists them in relating to students the necessary educational preparation they will need in order to function successfully on a job.	3.61	3.45	3.55	3.51	3.51	3.65	A	A	A	A	A	A	A
32. Personnel development for elementary teachers is needed whereby materials can be developed for students showing the occupational requirements and competencies, along with the educational necessities, as it relates to the disadvantaged and handicapped.	3.31	3.20	3.43	3.09	3.19	3.33	A	A	A	A	A	A	A

*$\overline{PY}$ = Portland Group Mean, $\overline{SY}$ = Seattle Group Mean, $\overline{CY}$ = Control Group Mean, $\overline{EY}$ = Experimental Group Mean, $\overline{ADY}$ = Average and Above Demographic Group Mean, $\overline{PDY}$ = Poverty and Minority Group Mean, H1 . . . H7 = Primary and Subsidiary Hypotheses, A = Accept, and R = Reject Hypothesis. The critical value of tabular "F" is 6.81 at the .01 level of significance.

TABLE VIII

ANALYSIS OF PRIMARY MEAN SCORES AND NULL HYPOTHESIS FOR THREE-WAY ANOVA OF 7 STATEMENTS RELATIVE TO THE NEEDS OF IN-SERVICE EDUCATION IN GRADES FOUR, FIVE AND SIX FOR AWARENESS OF CAREERS*

Need Statements	Primary Mean Scores						Primary	Subsidiary				
	$\overline{PY}$	$\overline{SY}$	$\overline{CY}$	$\overline{EY}$	$\overline{ADY}$	$\overline{PDY}$	H1	H2	H3	H4	H5	H6	H7
33. Elementary teachers need in-service programs which will assist them in developing student understanding of the relationships between an individual's career and his overall life style.	3.49	3.26	3.73	3.03	3.40	3.35	A	R	A	A	A	A	A
34. Elementary teachers need personnel improvement programs which will assist them in developing student understanding of the variety and complexity of careers in the world of work.	3.73	3.46	3.65	3.54	3.59	3.60	A	A	A	A	A	A	A
35. Some elementary teachers may need work experience in order to be effective in relating work, life and family roles to students.	3.68	3.63	3.54	3.76	3.68	3.63	A	A	A	A	A	A	A
36. Specific programs for elementary teachers need to be designed which develops career awareness instructional materials for black minority youth.	3.18	3.19	3.36	3.00	3.00	3.36	A	A	A	A	A	A	A

TABLE VIII CONTINUED

Need Statements	Primary Mean Scores						Primary and Subsidiary Hypotheses						
	$\overline{PY}$	$\overline{SY}$	$\overline{CY}$	$\overline{EY}$	$\overline{ADY}$	$\overline{PDY}$	H1	H2	H3	H4	H5	H6	H7
37. Higher education needs to design programs for elementary teachers which will teach students to understand the ways in which careers relate to the goals, needs and functions of the society.	3.38	3.44	3.40	3.41	3.44	3.38	A	A	A	A	A	A	A
38. Elementary teachers need in-service which will assist them in preparing students to determine the basic characteristics and qualifications related to the preparation and performance of the major tasks associated with various occupational roles.	3.25	3.13	3.19	3.19	3.16	3.21	A	A	A	A	A	A	A
39. School districts should develop in-service programs for teachers which will assist them in preparing elementary students to understand that career aspirations involves progressing through stages of preparation for and the performance of occupational roles, and may involve a change in basic career direction.	3.33	3.35	3.33	3.35	3.28	3.40	A	A	A	A	R	A	A

*$\overline{PY}$ = Portland Group Mean, $\overline{SY}$ = Seattle Group Mean, $\overline{CY}$ = Control Group Mean, $\overline{EY}$ = Experimental Group Mean, $\overline{ADY}$ = Average and Above Demographic Group Mean, $\overline{PDY}$ = Poverty and Minority Group Mean, H1 . . . H7 = Primary and subsidiary Hypotheses, A = Accept, and R = Reject Hypothesis. The critical value of tabular "F" is 6.81 at the .01 level of significance.

importance than did teachers in experimental groups.

Twenty of the two factor subsidiary interactions were accepted and one was rejected. All three factor subsidiary interactions were accepted.

The analysis of primary mean scores and tests of hypotheses for seven statements regarding decision-making abilities are contained in Table IX. Twenty of the primary main effects were accepted for this career awareness area. Item 41 was rejected. Control group teacher mean score was 3.96 and experimental teacher group mean score was 3.54. Those teachers in control groups believed this item to be significantly more important than did the experimental teacher group.

Nineteen of the two factor subsidiary interactions were accepted and three were rejected. All three factor interactions were accepted for the seven items.

Table X provides the primary mean scores and tests of hypotheses for the career awareness area of work understanding and job skills. Twenty-two of the primary main effects were accepted and two were rejected. Item 50 indicated statistical difference between the two cities. Portland teachers' mean score was 3.58 and Seattle teachers' mean score was 2.98. The Portland teachers believed this item to be more important than the Seattle teachers. Item 51 revealed significant differences between demographic groups. The average and above average demographic group mean was 4.08 and the poverty or minority group mean was 3.58. Teachers from schools located in average or above average demographic areas believed this item to be more important than those teachers from poverty or minority demographic areas.

TABLE IX

ANALYSIS OF PRIMARY MEAN SCORES AND NULL HYPOTHESES FOR THREE-WAY ANOVA OF 7 STATEMENTS RELATIVE TO THE NEEDS OF IN-SERVICE EDUCATION IN GRADES FOUR, FIVE AND SIX FOR DECISION-MAKING ABILITIES*

Need Statements	Primary Mean Scores						Primary				Subsidiary		
	$\overline{PY}$	$\overline{SY}$	$\overline{CY}$	$\overline{EY}$	$\overline{ADY}$	$\overline{PDY}$	H1	H2	H3	H4	H5	H6	H7
40. Teachers need professional improvement in order to be confident enough to let a child live with the consequences of his/her decision-making.	3.59	3.14	3.58	4.05	3.19	3.58	A	A	A	A	R	A	A
41. Elementary teachers need in-service which will assist them in teaching students to understand that the decision-making process includes responsible individual or group action in identifying alternatives, selecting the most appropriate courses of action which are consistent with the values and goals in taking necessary steps in implementing action.	3.86	3.64	3.96	3.54	3.69	3.81	A	R	A	A	A	A	A
42. Developmental programs need to be designed which provide elementary teachers with the opportunity to create hands-on activities related to careers so that learning becomes relevant.	4.19	3.95	3.98	4.16	4.03	4.11	A	A	A	A	A	A	A

TABLE IX

Need Statements	Primary Mean Scores PȲ	SȲ	CȲ	EȲ	ADȲ	PDȲ	Primary H1	H2	H3	Subsidiary H4	H5	H6	H7
43. Career awareness decision-making should be an integral part of the elementary curriculum as it relates to mathematics, science, social, studies, communications, etc.; and in-service development needs to be conducted on a continuing basis in order to implement this philosophy.	3.80	3.66	3.73	3.74	3.83	3.64	A	A	A	A	A	A	A
44. Specific in-service programs need to be provided to elementary teachers related to students with special needs or those identified as disadvantaged and handicapped so that these students will be better equipped to make decisions concerning their future life style and career goals.	3.65	3.54	3.53	3.66	3.69	3.50	A	A	A	A	A	A	A
45. Elementary teachers need professional improvement in career awareness which will assist them in preparing students to make decisions pertaining to occupational tasks to be performed on jobs.	3.19	3.18	3.21	3.15	3.16	3.20	A	A	A	A	R	A	A

TABLE XI CONTINUED

Need Statements	Primary Mean Scores						Primary			Subsidiary			
	$\overline{PY}$	$\overline{SY}$	$\overline{CY}$	$\overline{EY}$	$\overline{ADY}$	$\overline{PDY}$	H1	H2	H3	H4	H5	H6	H7
46. Workshops need to be designed whereby elementary teachers have the opportunity to create instructional materials and teaching strategies relating to identifying, gathering and utilizing sources of information which are related to the career decision-making process.	3.44	3.60	3.48	3.56	3.64	3.40	A	A	A	A	A	A	A

*$\overline{PY}$ = Portland Group Mean, $\overline{SY}$ = Seattle Group Mean, $\overline{CY}$ = Control Group Mean, $\overline{EY}$ = Experimental Group Mean, $\overline{ADY}$ = Average and Above Demographic Group Mean, $\overline{PDY}$ = Poverty and Minority Group Mean, H1 . . . H7 = Primary and Subsidiary Hypotheses, A = Accept, and R = Reject Hypotheses. The critical value of tabular "F" is 6.81 at the .01 level of significance.

TABLE X

ANALYSIS OF PRIMARY MEAN SCORES AND NULL HYPOTHESES FOR THREE-WAY ANOVA OF 8 STATEMENTS RELATIVE TO THE NEEDS OF IN-SERVICE EDUCATION IN GRADES FOUR, FIVE AND SIX FOR WORK UNDERSTANDING AND JOB SKILLS*

Mean Statements	Primary Mean Scores						Primary			Subsidiary			
	$\overline{PY}$	$\overline{SY}$	$\overline{CY}$	$\overline{EY}$	$\overline{ADY}$	$\overline{PDY}$	H1	H2	H3	H4	H5	H6	H7
47. Elementary teachers need teaching strategy improvement which will assist them in preparing students to recognize and understand the advantages and responsibilities associated with working independently, as a member of a team and being supervised or directed.	4.00	3.84	3.95	3.89	3.75	3.09	A	A	A	R	A	A	A
48. Through in-service education, elementary teachers should be prepared to help students understand the influence of workmanship and skill upon the materials, processes, and products of business and industry.	3.81	3.59	3.68	3.73	3.51	3.89	A	A	A	A	R	A	A
49. In-service programs should be provided to enable elementary teachers to help students become familiar with job skill characteristics of each major family of occupations.	3.54	3.35	3.56	3.33	3.41	3.48	A	A	A	A	A	A	A

TABLE X CONTINUED

Need Statements	Primary Mean Scores PȲ	SȲ	CȲ	EȲ	ADȲ	PDȲ	Primary H1	H2	H3	Subsidiary H4	H5	H6	H7
50. Professional improvement for elementary teachers needs to be established which will assist them in designing teaching strategies that will prepare students to develop understanding of the fundamental aspects of behavioral or interpersonal relationships, generated as a result of the interaction of various occupational and career roles, such as employer, employee, manager, supervisor, worker, team member, associate professional or para-professional.	3.58	2.98	3.25	3.30	3.33	3.23	R	A	A	A	A	A	A
51. Fourth, fifth and sixth grade teachers need a continuous program of interaction between grade levels on articulation of teaching content. This will assist them in preparing students to develop the educational and occupational competencies which are important for moving on to the next stage of preparation and entry into an occupational area of interest.	3.86	3.79	3.81	3.84	4.08	3.58	A	A	R	A	A	A	A
52. Elementary teachers need professional improvement which will upgrade their competencies related to production and trade tools, equipment and materials associated with a variety of occupational clusters.	3.09	3.38	3.30	3.16	3.16	3.30	A	A	A	A	A	A	A

TABLE X CONTINUED

Need Statements	Primary Mean Scores						Primary	Subsidiary					
	$\overline{PY}$	$\overline{SY}$	$\overline{CY}$	$\overline{EY}$	$\overline{ADY}$	$\overline{PDY}$	H1	H2	H3	H4	H5	H6	H7
53. In-service for elementary teachers need to be developed which will enhance their teaching methodology so that students develop an understanding of materials and processes used which are associated with business, industrial and public service occupations.	3.33	3.03	3.08	3.28	3.16	3.19	A	A	A	A	A	A	A
54. Elementary teachers need in-service development which will assist them in designing teaching strategies whereby students develop the planning and process skills to identify the specific objectives of a task, specify the required resources, identify the necessary steps to complete the task, perform the actual operations and evaluate the final results.	3.43	3.24	3.53	3.14	3.19	3.49	A	A	A	A	A	A	A

*$\overline{PY}$ = Portland Group Mean, $\overline{SY}$ = Seattle Group Mean, $\overline{CY}$ = Control Group Mean, $\overline{EY}$ = Experimental Group Mean, $\overline{ADY}$ = Average and Above Demographic Group Mean, $\overline{PDY}$ = Poverty and Minority Group Mean, H1 . . . H7 = Primary and Subsidiary Hypotheses, A = Accept, and R = Reject Hypothesis. The critical value of tabular "F" is 6.81 at the .01 level of significance.

Twenty-two of the two factor subsidiary interactions were accepted and two were rejected. All eight three-factor subsidiary interactions were accepted for this area of career awareness.

Table XI contains primary mean scores and results of the tests of hypotheses for eight statements relating to the career awareness area for work aptitudes and appreciations. Twenty-two primary effects were accepted and two were rejected. Item 58 was rejected by the cities. Portland teacher group mean was 3.76 and Seattle teacher group mean was 2.74. Portland teachers believed this item to be significantly more important than Seattle teachers. Item 62 was rejected by demographic teacher groups. The mean score for average and above average demographic group was 2.95 and poverty or minority demographic group mean was 3.44. Those teachers from schools located in poverty or minority areas of the cities believed this item to be more important for their professional needs than did the average and above average demographic group.

Twenty-one two factor subsidiary interactions were accepted and three rejected. All eight three-factor subsidiary interactions were accepted for this career awareness area.

Table XII provides the primary means and significance tests of hypotheses for 22 items regarding other areas of interest for personnel development in career awareness. Fifty-nine of these primary main effects were accepted and seven were rejected.

Item 64 was rejected by control and experimental groups. The control group mean was 3.75 and experimental group mean was 3.25.

TABLE XI

ANALYSIS OF PRIMARY MEAN SCORES AND NULL HYPOTHESES FOR THREE-WAY ANOVA OF 8 STATEMENTS RELATIVE TO THE NEEDS OF IN-SERVICE EDUCATION IN GRADES FOUR, FIVE AND SIX FOR WORK APTITUDES AND APPRECIATIONS*

Need Statements	Primary Mean Scores						Primary				Subsidiary		
	$\overline{PY}$	$\overline{SY}$	$\overline{CY}$	$\overline{EY}$	$\overline{ADY}$	$\overline{PDY}$	H1	H2	H3	H4	H5	H6	H7
55. In-service development needs to be created whereby other elementary teachers, who have had success in teaching work appreciations and developing aptitudes in students, are provided opportunities to relate these teaching strategies to other elementary teachers.	4.09	3.90	4.01	4.00	4.09	3.93	A	A	A	A	A	A	A
56. Intensive workshops need to be designed which prepare teachers to deal effectively with elementary students with special needs, and thereby optimize aptitude development and work appreciation.	3.46	3.39	3.60	3.25	3.29	3.56	A	A	A	A	A	A	A
57. Workshops need to be developed between business, industry and publis service organizations and elementary teachers which will provide teachers with insight into job specialization, recognizing that jobs are coordinated in the production, sales and services provided to customers and/or users, and that worker cooperation is essential.	3.70	3.38	3.65	3.43	3.44	3.64	A	A	A	A	A	A	A

TABLE XI CONTINUED

Need Statements	Primary Mean Scores PȲ	SȲ	CȲ	EȲ	ADȲ	PDȲ	Primary H1	Subsidiary H2	H3	H4	H5	H6	H7
58. Teachers in the fourth, fifth and sixth grades need development which articulates their teaching systems and aptimizes student work aptitudes and appreciations by specifically identifying what should be taught at each grade level.	3.76	2.74	3.25	3.25	3.43	3.08	R	A	A	R	A	A	A
59. Elementary teachers need professional improvement which will assist them in teaching students to recognize, that once a task or job is accepted, there are certain responsibilities to himself, employer and fellow workers.	3.86	3.93	3.89	3.90	3.74	4.05	A	A	A	A	R	A	A
60. In-service development needs to be established which will assist elementary teachers in preparing disadvantaged and handicapped students to function effectively within the realm of their individual aptitudes, and to appreciate a concern of responsibility to economic and social values.	3.41	3.36	3.34	3.44	3.48	3.30	A	A	A	A	A	A	A

TABLE XI CONTINUED

Need Statements	Primary Mean Scores						Primary Subsidiary						
	$\overline{PY}$	$\overline{SY}$	$\overline{CY}$	$\overline{EY}$	$\overline{ADY}$	$\overline{PDY}$	H1	H2	H3	H4	H5	H6	H7
61. Elementary teachers need in-service improvement which will assist them in preparing students to recognize the personal differences in others. By being able to do this, students will develop tolerance and flexibility in understanding interpersonal relationships.	3.58	4.05	3.86	3.76	3.79	3.84	A	A	A	R	A	A	A
62. Elementary teachers need in-service development which will assist them in preparing students to understand the various ways of identifying and describing individual differences in themselves and in others.	3.26	3.13	3.40	2.99	2.95	3.44	A	A	R	A	A	A	A

*$\overline{PY}$ = Portland Group Mean, $\overline{SY}$ = Seattle Group Mean, $\overline{CY}$ = Control Group Mean, $\overline{EY}$ = Experimental Group Mean, $\overline{ADY}$ = Average and Above Demographic Group Mean, $\overline{PDY}$ = Poverty and Minority Group Mean, H1 . . . H7 = Primary and Subsidiary Hypotheses, A = Accept, and R = Reject Hypothesis. The critical value of tabular "F" is 6.81 at the .01 level of significance.

TABLE XII

ANALYSIS OF PRIMARY MEAN SCORES AND NULL HYPOTHESES FOR THREE-WAY ANOVA OF 22 STATEMENTS RELATIVE TO THE NEEDS OF IN-SERVICE EDUCATION IN GRADES FOUR, FIVE AND SIX FOR OTHER AREAS IN CAREER AWARENESS*

Need Statements	Primary Mean Scores						Primary	Subsidiary				
	$\overline{PY}$	$\overline{SY}$	$\overline{CY}$	$\overline{EY}$	$\overline{ADY}$	$\overline{PDY}$	H1	H2	H3	H4	H5	H6	H7
63. In-service development needs to be conducted on a continuing basis for elementary teachers and school administrators which increases community and professional involvement, interaction and communication for implementation of effective career education.	3.94	3.58	3.65	3.86	3.68	3.84	A	A	A	A	A	A	A
64. Workshops need to be developed for elementary teachers which will assist them in preparing minority students to function in, and be change agents in, the environment which they are accustomed to in their respective life styles.	3.45	3.55	3.75	3.25	3.41	3.59	A	R	A	A	A	A	A
65. Professional development of elementary teachers is needed which will assist them in preparing elementary students to recognize that career development is influenced by changing individual and environmental factors, and that these factors may act separately or together.	3.35	2.99	3.28	3.06	3.10	3.24	A	A	A	A	A	A	A

TABLE XII

ANALYSIS OF PRIMARY MEAN SCORES AND NULL HYPOTHESES FOR THREE-WAY ANOVA OF 22 STATEMENTS RELATIVE TO THE NEEDS OF IN-SERVICE EDUCATION IN GRADES FOUR, FIVE AND SIX FOR OTHER AREAS IN CAREER AWARENESS*

Need Statements	Primary Mean Scores						Primary			Subsidiary			
	$P\bar{Y}$	$S\bar{Y}$	$C\bar{Y}$	$E\bar{Y}$	$AD\bar{Y}$	$PD\bar{Y}$	H1	H2	H3	H4	H5	H6	H7
66. Workshops need to be developed for elementary teachers, counselors and administrators which create leadership for involving the community, professional staff and students in assessment of perceived career awareness needs, goals and objectives.	3.63	3.44	3.34	3.73	3.49	3.58	A	A	A	A	A	A	A
67. In-service development for teachers and administrators needs to be carried on which improves teacher and administrator skills in program planning related to teaching strategies and curriculum development.	3.34	3.08	2.99	3.43	3.18	3.24	A	A	A	R	A	A	A
68. Elementary teachers need to be given the opportunity to design learning systems which specify in advance the desired outcomes of individual student performance in relation to occupational goals.	3.13	2.93	3.11	2.94	2.89	3.16	A	A	A	A	A	R	A
69. Personnel development needs to be designed which provides the elementary teacher with the techniques and procedures for identifying each disadvantaged and handicapped student's characteristics and entrance level.	3.18	3.10	3.44	2.84	3.20	3.08	A	R	A	A	A	A	A

TABLE XII CONTINUED

Need Statements	Primary Mean Scores PȲ	SȲ	CȲ	EȲ	ADȲ	PDȲ	Primary H1	H2	H3	Subsidiary H4	H5	H6	H7
70. Elementary teachers need intensive improvement which provides them with teaching strategies dealing with affective domain areas of learning (creativity, tolerance, morality, honesty, self-discipline, and social awareness) and relating these to careers and life styles.	3.34	3.61	3.55	3.40	3.19	3.76	A	A	R	A	A	A	A
71. Elementary teachers need in-service education which prepares them to deal effectively with the various psychomotor domain areas of learning, and relating these skills to student occupational needs through hands-on experiences.	3.16	3.33	3.28	3.21	3.04	3.45	A	A	A	A	R	A	A
72. Elementary teachers need development whereby they are provided opportunities to design performance objectives for each grade level (fourth, fifth and sixth grades) and the procedures to be used in evaluating teaching results.	3.25	3.76	3.31	2.70	3.85	3.16	R	R	A	A	A	A	A
73. In-service programs need to be created whereby elementary teachers and administrators are given opportunities to design systems for involving the parents of the community in the educational process, right in the classroom and in their respective jobs.	3.90	3.58	3.69	3.79	3.70	3.78	A	A	A	A	A	A	A

TABLE XII CONTINUED

Need Statements	Primary Mean Scores $P\bar{Y}$	$S\bar{Y}$	$C\bar{Y}$	$E\bar{Y}$	$AD\bar{Y}$	$PD\bar{Y}$	Primary H1	H2	H3	Subsidiary H4	H5	H6	H7
74. Workshops need to be designed for elementary teachers that identify effective teaching strategies and teaching personnel based on student needs, abilities, interests and attitudes as they relate to occupational goals.	3.31	3.39	3.28	3.43	3.28	3.43	A	A	A	A	A	A	A
75. Workshops need to be established for elementary teachers which design systems for instructional evaluation in order to see if teachers achieve what they purport to achieve.	3.01	3.00	3.21	2.80	2.74	3.28	A	A	R	R	A	A	A
76. Elementary teachers need development in understanding the total career education philosophy and concept (awareness, exploratory, clusters, and specialization) so that they are better able to relate to students' occupational goals.	3.50	3.19	3.40	3.29	3.54	3.15	A	A	A	R	A	A	A
77. Elementary teachers need development which prepares them to understand the goals, objectives and functions of vocational education service areas (agricultural education, distributive education, business and office education, industrial education, a home economics education and consumer education) and understand the relationship of these areas to career education so that students can effectively plan their educational goals.	3.39	3.04	3.46	2.96	3.19	3.24	A	R	A	A	A	A	A

TABLE XII CONTINUED

Need Statements	Primary Mean Scores $\bar{P}$	$\bar{S}$	$\bar{C}$	$\bar{E}$	$\bar{AD}$	$\bar{PD}$	Primary	Subsidiary				
							H1	H2	H3	H4	H5	H6	H7
78. Workshops need to be designed on a continuing basis which develop opportunities for elementary teachers, counselors and administrators to serve effectively in leadership roles for implementing career education concept and philosophy.	3.30	3.26	3.14	3.43	3.31	3.25	A	A	A	A	R	A	A
79. Professional improvement should be designed whereby teachers, counselors and administrators jointly meet together to become acquainted with the procedures and processes of effective documentation of local district needs for the implementation of career education.	3.33	3.20	3.11	3.41	3.39	3.14	A	A	A	A	A	A	A
80. Elementary teachers need in-service improvement which prepares them to effectively deal with evaluation and accountability of career awareness activities.	3.14	2.95	3.15	2.94	2.90	3.19	A	A	A	R	A	A	A
81. Elementary teachers need continuous development which will assist them in relating career awareness and the cognitive domain areas of learning (communication skills, mathematic skills, natural science skills, social science skills, fine arts skills, and health skills) in preparing elementary students to function effectively in the world of work.	4.05	3.94	3.99	4.00	4.06	3.93	A	A	A	A	A	A	A

TABLE XII CONTINUED

Need Statements	Primary Mean Scores						Primary			Subsidiary			
	$\overline{PY}$	$\overline{SY}$	$\overline{CY}$	$\overline{EY}$	$\overline{ADY}$	$\overline{PDY}$	H1	H2	H3	H4	H5	H6	H7
82. Federal, state, and local resources (physical, human and financial) need to be allocated at a greater level of priority in order to accomplish long-range and short-range professional improvement for elementary teachers and career awareness.	4.00	3.90	3.76	4.14	3.98	3.93	A	A	A	A	A	A	A
83. Fourth, fifth and sixth grade teachers need in-service programs which will assist them in preparing students to become aware of the various environmental elements which affect career development.	3.53	3.21	3.34	3.40	3.33	3.41	A	A	A	A	A	R	A
84. Elementary teachers, counselors and administrators need development in the skills of creating a defensible basis for allocating physical, financial and human resources to achieve career education goals and objectives.	3.50	3.45	3.33	3.63	3.30	3.55	A	A	A	A	A	A	A

*$\overline{PY}$ = Portland Group Mean, $\overline{SY}$ = Seattle Group Mean, $\overline{CY}$ = Control Group Mean, $\overline{EY}$ = Experimental Group Mean, $\overline{ADY}$ = Average and Above Demographic Group Mean, $\overline{PDY}$ = Poverty and Minority Group Mean, H1 . . . H7 = Primary and Subsidiary Hypotheses, A = Accept, and R = Reject Hypothesis. The critical value of tabular "F" is 6.81 at the .01 level of significance.

Control teacher group believed this item to be significantly more important than did the experimental teacher group. Item 69 had a similar result.

Item 70 was rejected by the demographic groups. Average and above average demographic group mean was 3.19 and poverty or minority group mean was 3.76. Those teachers located in poverty or minority demographic areas believed this item to be significantly more important.

Item 72 received two primary rejections. Seattle teachers had a mean score of 3.76 and Portland teachers had a mean score of 3.25. Seattle teachers felt that this statement to be significantly more important. The control group mean was 3.31 and the experimental group mean was 2.70; control group teachers believed this statement to be significantly more important than did the experimental teacher group.

Item 75 was rejected by demographic groups. The mean score for poverty or minority teacher groups was 3.28 and the average or above average demographic group received a mean score of 2.74. Those teachers located in schools where there is a high concentration of poverty level students or minority groups believed this statement to be significantly more important for their needs.

Control and experimental groups differed on item 77 The control group mean score was 3.46 and experimental group mean was 2.96. Control group teachers believed this to be significantly more important.

There were 66 two factor subsidiary interactions and 22 three factor subsidiary interactions. Fifty-eight were accepted at the two factor level and eight were rejected. All three factor subsidiary interactions were accepted.

Table XIII provides the analysis of rejections for all primary main effects. There were 252 independent tests of statistical differences for the 84 dependent variables. From the 252 tests, 235 items were accepted and 17 were rejected.

Four items were rejected for primary city effect, eight were rejected as to the primary treatment effect and five were rejected for primary demographic effect. Congruence of judgment occurred for the remaining 235 dependent variables.

The subsidiary two factor interactions contained a total of 23 rejections. Ten of these occurred between cities and demographic groups and ten between city and treatment groups. Three interactions occurred between demographic and treatment groups. The total number of possible two factor interactions was 252, and there was no interaction effect for 229 of the two factor subsidiary interactions. There was no interaction effect for the three factor subsidiary interactions.

Caution should be administered in rejecting null hypotheses for these past-mentioned interactions. The differences may be due to ordinal or disordinal circumstances. Sampling error or variations in the treatment effect may be the causes for these differences.

The analysis revealed that in most cases teachers believed that all of the need statements relating to their in-service needs scored

TABLE XIII

ANALYSIS OF 17 REJECTIONS FOR PRIMARY MAIN EFFECTS

Item No.	City Effect	Treatment Effect	Demographic Effect
2.	Rej.		
12.		Rej.	
19.		Rej.	
26.			Rej
33.		Rej.	
41.		Rej.	
50.	Rej.		
51.			Rej.
58.	Rej.		
62.			Rej.
64.		Rej.	
69.		Rej	
70.			Rej.
72.	Rej.	Rej	
75.			Rej
77.		Rej	

a mean of average to above average importance. The top twenty priority need statements appear to be most important when developing in-service education programs.

Appendix R contains the statistical treatment and computational formulas applied in this study.

Appendix S provides information from Oregon and Washington participants; this information was essential for final reporting to the two State agencies contributing to the research consortium.

Appendix T lists a sample of the computer analysis for the 84 dependent variables.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Restatement of the Problem

The primary objectives for conducting this research investigation were as follows:

1. To determine the professional in-service development needs of fourth, fifth and sixth grade elementary teachers in Portland and Seattle public schools.
2. To examine the differences between control teacher groups and experimental teacher groups, and to determine the treatment effect advisory committee members have on elementary teacher decision-making processes.
3. To analyze the differences between teachers located in average and above average income demographic areas and teachers located in poverty or minority income demographic areas for the two cities.

There were four subsidiary objectives of the research project and they were as follows:

4. To determine the subsidiary interaction differences between city teacher groups and demographic teacher groups.
5. To analyze the statistical subsidiary interaction differences between city teacher groups and treatment effect groups.

6. To examine the subsidiary interaction differences between demographic teacher groups and treatment effect groups.
7. To determine the subsidiary interaction differences between city teacher groups, demographic teacher groups and the treatment effect groups.

The Research Model

The Delphi technique generated the necessary professional in-service need statements for this study. There were ten experts from Oregon and Washington serving as Delphi panel members in the construction of the research model. Through three rounds of the Delphi technique, the panel members generated 84 need statements for the elementary teachers respondents.

A total of 160 randomly selected elementary teachers from grades four, five and six participated in the research project. These teachers were randomly selected from the metropolitan school systems of Portland and Seattle, In addition, twenty advisory committee members were selected by Portland and Seattle administrative staff to participate in experimental treatment groups.

Elementary teachers responded to the 84 need statements through the utilization of a Q-Sort Card Deck. The last card in this deck was a priority card for elementary teachers to complete as to what they believed to be the highest priority in meeting their professional in-service needs.

This study employed the three way ANOVA for the analyses of data and the testing of null hypotheses. The testing included the analysis of three primary effects, three two factor subsidiary interactions and one three factor subsidiary interaction for each of the 84 dependent variables.

Analyses of the data included the development of a matrix to determine the top twenty priorities elementary teachers identified as being important for their professional in-service development. Primary mean scores and the results for the tests of all primary and subsidiary hypotheses were analyzed for each of the 84 dependent variables.

Summary of the Findings

The analysis of data between the two cities of Portland and Seattle identified twenty need statements for possible inclusions for personnel development in-service programs. The priority ranking scores ranged from a priority value of 381 to 149 for the top twenty items.

Analyses of the tests of significance for the three primary main effects were as follows:

1. Individual Self-Awareness. Forty primary main effects were accepted and two were rejected. There was one city rejection and one control and experimental treatment effect rejection.

2. Economic and Social Awareness. Out of 33 primary main effects, only one was rejected; this occurred in the control and experimental treatment group effect.
3. Educational Awareness. There were 21 primary main effects and one was rejected. This item occurred between the demographic teacher group.
4. Awareness of Careers. From 21 primary main effects, one was rejected. The control and experimental treatment groups rejected the one statement.
5. Decision-Making Abilities. For this area, twenty primary effects were accepted and one was rejected. This rejection occurred between control and experimental treatment teacher groups.
6. Work Understanding and Job Skills. There were 24 primary main effects; two were rejected and 22 accepted. One rejection occurred between the two cities and one between demographic teacher groups.
7. Work Aptitudes and Appreciations. Twenty-two primary main effects were accepted and two rejected. The two differences occurred between cities and demographic teacher groups.
8. Other Areas. There were 66 primary main effects in this area. Fifty-nine were accepted and seven rejected. One rejection occurred between cities, four rejections between control and experimental treatment groups and two between demographic teacher groups.

Of all of the primary hypotheses tested, there were four differences between cities, eight differences between control and experimental treatment groups and five differences between demographic teacher groups. For these 17 primary main effects the null hypothesis were rejected at the .01 level of significance. There were 235 primary main effects accepted in this study.

Conclusions

From the review and analysis of related literature and research studies, along with the interpretation of the data in this research project, the following conclusions have been made for possible inclusion in the professional development of in-service programs for Portland and Seattle public schools:

1. The 20 priority items should be considered when designing professional in-service development programs for fourth, fifth and sixth grade elementary teachers. Elementary teachers from Portland and Seattle believed these 20 top priorities were the most important for meeting their in-service needs.
2. There appears to be very little difference between the two cities for developing a professional in-service program. Out of 84 statements, there were only four rejections of the hypotheses tests There was congruence of judgment for 80 of the items between the two cities.

3. The treatment effect of advisory committee members participating in experimental groups appears to have little influence on the decisions elementary teachers make in relation to their judgments for in-service education. From the 84 primary main effects, eight were rejected. Seventy-six tests of significance were accepted. It should also be noted that the mean scores, in most instances, were higher for the control groups than in the experimental groups.
4. There appears to be very little difference between demographic areas in the two cities. Seventy-nine tests of significance were accepted and five were rejected. However, these five rejections should be taken into account when organizing and planning the development of in-service education programs for career awareness.

Implications

From the analyses of data, the synthesis of findings and the development of conclusions, the following implications are presented:

1. Higher education, metropolitan school districts and state agencies responsible for the development of career education, should consider the top twenty priorities identified in this study when developing professional in-service programs for fourth, fifth and sixth grade elementary teachers. The top ten should be

given high priority; these items seemed to be of the highest importance for the 160 elementary teachers participating in this study. The twenty priorities are contained in Table V, page 59.

2. The eight major functional areas of career awareness should be included in professional development programs. They were: (1) individual self-awareness, (2) economic and social awareness, (3) educational awareness, (4) awareness of careers, (5) decision-making abilities, (6) work understanding and job skills, (7) work aptitudes and appreciations and (8) other areas in career awareness.
3. Large metropolitan school districts might form a synergism when planning and developing professional in-service education. There appears to be very few differences between cities relating to what elementary teachers believe to be significant to their professional development needs. Administrators of career education might be able to form programs on a more effective basis by working together in the planning, development and implementation of career education.
4. It appears that advisory committees have little effect on the decisions elementary teachers make in regards to their needs for in-service education. However, it should be noted that this was the first time for elementary exposure to a career education advisory committee and it was the first time for advisory committee being

exposed to the elementary teacher environment. It is too early at this point to make any major recommendations as to the effectiveness of advisory committees in determining in-service education needs. It is recommended that both teachers and advisory committee members become more actively involved in career education; and specifically, career awareness so that greater understanding of the philosophy and movement might be attained.

5. There were very few differences between demographic groups in this study. Therefore, it is suggested that universal in-service programs be developed for both Portland and Seattle. However, there were a few instances when differences did occur. These items might be taken into consideration when developing specific programs for specific areas within the two cities.
6. It is recommended that the following specific areas be considered when developing in-service education for the two cities:
    a. Workshops for the development of out-of-school experiences be created. These should include the organization of meaningful field trips, the development of effective resource people and the involvement of parents who would be effective in carrying out meanginful experiences in career awareness.

b. In-service development should be conducted which prepares teachers to design effective hands-on experiences which makes learning of careers relevant. These hand-on activities should not necessarily be skill building activities, but rather they should be the kinds of activities which makes mathematics, science, social studies, communications, health and the physical segments of learning more relevant. It is recommended that at least one major hands-on activity be developed for each cluster area. For example, high school automotive students might reconstruct small automobile engines to be placed in each elementary school. Elementary teachers could utilize the engine when studying the historical aspects of industry, the ecological aspects of gas engines, the mathematical concepts involved in the manufacturing of the product, the technology, labor organizations and the careers involved with the production, marketing and service aspects of the transportation cluster.

c. In-service programs should include the positive self-concept teaching strategies so that students become productive and participating individuals in the educational environment and the world of work.

d. It is suggested that in-service programs include professional development of teachers which prepares students in knowing themselves, understanding and respect their uniqueness in terms of past developments and the changes that take place in their growth and maturation.

e. Professional development should include the importance of education as a life-long process and the relationships of education to occupational success and job satisfaction.

f. A continuous program needs to be carried on for integrating careers into the general education curricula.

g. In-service programs should include teaching strategy improvement which prepares students to recognize and understand the advantages and responsibilities associated with working independently, as a member of a team and being supervised or directed.

h. Professional development of elementary teachers should be conducted, whenever possible, by teachers who have had success in teaching career awareness. The cadre approach in carrying on career awareness in-service is one method of accomplishing this recommendation.

i. There needs to be a greater level of priority in the way of physical, human and financial resources for accomplishing career awareness goals and objectives. Elementary teachers and administrators should conduct in-service programs whereby they develop ways and means of gaining support needs.

j. In-service programs should include professional improvement which prepares elementary students to recognize, that once a task is accepted, there are certain responsibilities to himself, employer and fellow workers.

The past-mentioned suggestions are of major importance in regards to this research project. Through the findings, it was evident that these to be possible inclusions for the development of in-service education for Portland and Seattle elementary schools.

Recommendations for Additional Study

Career education is a relatively young movement in American education, the following recommendations for additional study are as presented:

1. The model of this research project might be utilized at other grade levels for the assessment of professional in-service needs in metropolitan cities.

2. Additional research needs to be conducted with regard to the significance of advisory committees in the educational environment.
3. Replications of this study should be carried on in small school districts or rural communities for determining in-service needs.
4. Additional research is needed in determining the methods and procedures for implementing the specifics of teaching strategy development or curriculum development in metropolitan elementary schools.
5. The Delphi technique may be an alternative method in determining what in-service education needs should be for elementary teachers and other teacher levels in education. It is recommended that future studies apply the Delphi method in the assessment of needs, and that various persons (teachers, administrators, teacher educators, business and industrial representatives, sociologists, psychologists, members of the community, etc.) serve as participants in the Delphi process.

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APPENDICES

APPENDIX A

RESEARCH CONSORTIUM CONTRACTS

942 Lancaster Drive
Salem, Oregon 97310
Dale Parnell, Superintendent

and Vocational Education
VE-1 (71)
Reference No. _____

OTHER VOCATIONAL PROGRAMS EXPENDITURE

Form Use: Research, Teacher Education, Curriculum and Consultants

(X one) _y_ Obligation of Funds _____ Claim for Reimbursement

Educational Agency or Individual Portland District No. 1

Address 631 N.E. Clackamas St. (Street) Portland (City) County Multnomah

Name or Description of Activity: Identification of in-service personnel development needs in career awareness programs.

Duration Sept. (Month) 1 (Day) 1972 (Year) To May (Month) 1 (Day) 1973 (Year)

Type of Expenditures	Total Costs	Reimb. Requested	FOR STATE USE ONLY Approved Total Cost	Approved Reimb.	Local Match	V.E. No.
Personnel (Name, Position, Time, Rate)						
Payment to elem. teachers and business advisory persons	3,000	2,500.00				
Travel						
Supplies, Materials, Etc.						
Other, (Employee Benefits, Etc.)						
TOTAL		2,500.00				

Consultant information (if applicable)

Retirement No. _____ Social Security No. _____

Signed: _____ (School Representative) Director of Career Ed 5-25-72 Title Date

FOR STATE USE ONLY

Transmitted by: _____ Director Date

Approved _____ Assistant Superintendent Date

DESCRIPTION OF RESEARCH

This research investigation will measure the needs for in-service personnel development in career education elementary awareness programs. Fourth, fifth and sixth grade teachers from elementary schools located in Portland and Seattle will be selected on a random basis for research sample. A Delphi panel will be used from Oregon and Washington in determining the need statements to be used in the research. Respondents will react to a Q-Sort Card Deck in gathering the needed research.

This study is a consortium of Oregon and Washington State Boards, Portland and Seattle public schools and Oregon State University. A publication will be produced upon conclusion of the study for dissemination purposes.

VOCATIONAL EDUCATION

WASHINGTON STATE
COORDINATING COUNCIL FOR
OCCUPATIONAL EDUCATION

216 OLD CAPITOL BUILDING • OLYMPIA, WASHINGTON 98504

72-2260(065)08.

E&OE

27 1972

COOPERATIVE AGREEMENT

between

COORDINATING COUNCIL FOR OCCUPATIONAL EDUCATION
(hereinafter referred to as CCOE)

and

SEATTLE PUBLIC SCHOOLS
(hereinafter referred to as Contractor)

WHEREAS, the CCOE is committed to the national goal of providing every person the opportunity to be prepared to make meaningful occupational choices and to increase occupational choices available; and

WHEREAS, the CCOE has as one of its goals to increase the number of instructional hours devoted to "orientation to the world of work" in career selection in common schools, vocational technical institutes and community colleges in Washington state; and

WHEREAS, the project, Identification of Inservice Personnel Development Needs in Career Awareness for Portland and Seattle Elementary Schools, is designed to further these goals; and

WHEREAS, the Seattle Public Schools as the Contractor will provide the elementary teachers and business advisory personnel to furnish the necessary data information for research findings,

NOW, therefore, the above parties agree:

A. Duties of Contractor

To assure the accomplishment of the duties assigned to the Project Director, Bill Syhlman:

1. To supervise and direct the project.

2. To act as coordinator for the consortium members.

3. To identify the career awareness topics in priority rankings necessary for inservice personnel development in career awareness at the elementary school level.

3. To provide the CCOE a report of the findings of the study by June 30, 1973.

4. To provide quarterly progress reports beginning 90 days after the effective date of this agreement. Each progress report will identify the activities accomplished during the reporting period.

B. Duties of CCOE

1. To provide liaison services to the Contractor through the Professional Services Division.

2. To pay the Contractor up to $3,000 for the Seattle based research: $2,500 of which will be used for services rendered by elementary school teachers and business advisory members, and $500 to be used for DELPHI panel and the development of video tapes of the projected motivational groups. Payments would be due quarterly, based on the certified claim for reimbursement accompanying the quarterly progress reports specified in A.3. The final payment will not be made until final completion of the project has been certified.

C. Termination

The CCOE and the Contractor each have the privilege to cancel this agreement upon 15 days written notice to the other party. In the event of a cancellation by the CCOE, professional services provided to the date of cancellation shall be paid by the CCOE on a prorated basis for total service provided prior to cancellation.

D. Verbal Agreements

It is mutually agreed and understood that no alteration or variation of the terms of this agreement shall be valid unless made in writing and signed by the parties thereto and that no oral understandings or agreements not incorporated herein, unless made in writing between the parties hereto, shall be binding.

E. Indemnification

The Contractor shall perform all services as an independent contractor and shall not be considered an agent or agency of the CCOE.

Any and all claims that might arise under the Workman's Compensation Act on behalf of the Contractor or other persons while engaged in the performance of the duties and services contemplated by this agreement and any act or failure to act on the part of the Contractor shall be the Contractor's sole obligation and the Contractor shall indemnify the CCOE and hold it harmless from any liability for any act or failure to act on the part of the Contractor.

F. Ownership of Property

Title to the final report and video tapes developed and created under this agreement shall remain with the consortium but may be used by the Contractor with prior approval of the consortium members in the furtherance of the purpose outlined in the attached proposal for which this agreement was written.

The Contractor shall not, without prior approval of the CCOE, either during the term of this agreement or at any time thereafter, directly or indirectly, disclose or give to any person, firm, corporation, agency or political subdivision of a state or the federal government, or any educational institution or organization, any information acquired in the course of or as incident to the performance of the duties hereunder, for their own benefit, or to the detriment or intended detriment of the CCOE.

G. Non-assignability

Neither this contract nor any interest herein shall be assigned by other parties.

H. Effective Dates

This agreement shall be effective as of July 1, 1972 and shall continue until midnight June 30, 1973 unless terminated as provided in Section C.

IN WITNESS WHEREOF, the CCOE and the Seattle Public Schools have executed this Agreement this _____ day of _____ 1972.

SEATTLE PUBLIC SCHOOLS

_____
(Signature of person authorized to enter into agreement in behalf of the above school district)

COORDINATING COUNCIL FOR OCCUPATIONAL EDUCATION

_____
State Director and Executive Officer

_____
Director, Administrative Services and Special Programs

_____
Chairman, Coordinating Council for Occupational Education

APPENDIX B

RESEARCH CONSORTIUM BUDGET

OSU

OREGON STATE UNIVERSITY
SCHOOL OF EDUCATION

CORVALLIS, OREGON 97331

September 12, 1972

TO: Don Gilles, Oregon State Department of Education
Archie Breslin, Washington Coord. Council for Occupational Ed.
Ed Erickson, Seattle Public Schools
Marv Rasmussen, Portland Public Schools
Henry Ten Pas, Oregon State University, EPDA Director

SUBJECT: Consortium Research Project in Career Awareness

The Delphi Panel is in its final stages of being formulated, and each member will be contacted shortly. Each panel member will review and suggest priority items to be included in the project. Upon review of third round, it is anticipated that the research instrument will be in its final form.

Our budget for research purposes is as follows:

RESEARCH CONSORTIUM BUDGET

Seattle Budget		
Total Project Allocation		$ 3,000.00
Delphi Panel, 5 @ $60	300.00	
Business Reps, 20 @ $25	500.00	
Research Sample (Elem Teachers), 80 @ $25	2,000.00	
Printing and Tapes	200.00	
	$ 3,000.00	-0-
Portland Budget		
Total Project Allocation		$ 3,000.00
Delphi Panel, 5 @ $60	300.00	
Business Reps, 20 @ $25	500.00	
Research Sample (Elem Teachers), 80 @ $25	2,000.00	
Printing and Tapes	200.00	
	$ 3,000.00	-0-
Total Research Consortium	$ 6,000.00	

If Don Gilles and Archie Breslin have specific forms to be completed by participants in the project, please forward these to my address:

(continued...)

Re: Consortium Research Project in Career Awareness (cont.)

Bill Syhlman
Career Education Personnel Development Center
P. O. Box 16657
Portland, Oregon 97216

There will be 105 participants from Washington and 105 participants from Oregon, a total of 210 involved in the research.

We will keep all of you informed as events take place, and we will be working directly with Ed Erickson and Marv Rasmussen on initiating project developments, and your participation is greatly appreciated.

Sincerely yours,

Dr. E. Wayne Courtney
Chairman

Bill D. Syhlman
Project Director

BDS:er

APPENDIX C

LIST OF NEED STATEMENTS

List of Need Statements

The final card deck was administered to all Portland and Seattle respondents in the following order:

IDENTIFICATION OF IN-SERVICE PERSONNEL DEVELOPMENT

NEEDS IN CAREER AWARENESS FOR PORTLAND AND SEATTLE

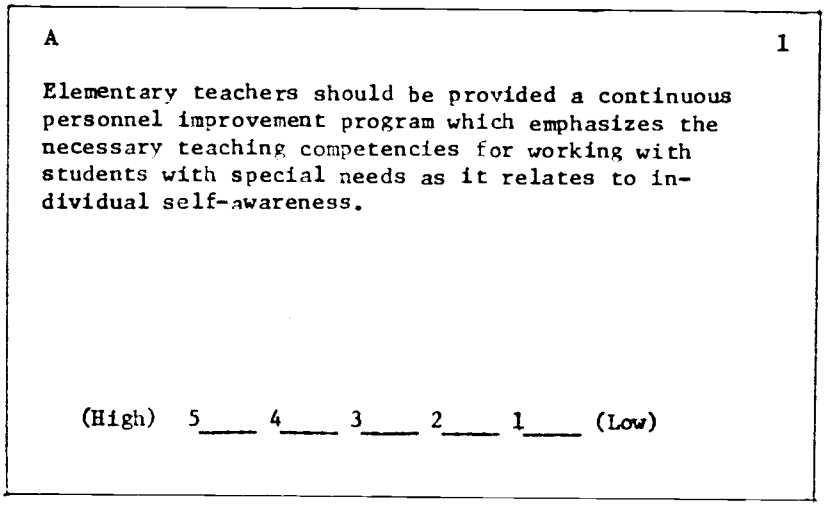
ELEMENTARY SCHOOLS

ii

Directions: The need rating scale for responses is as follows:

5 -- Considered to be very high in need.
4 -- Considered to be above average in need.
3 -- Considered to be average in need.
2 -- Considered to be below average in need.
1 -- Considered to be very low in need.

Place an (X) on the blank of your choice when responding to individual items.



B-2 Elementary teachers need professional improvement in developing an awareness of the necessity of that cultural expertise which would enable a purchasing power earner to expend that purchasing power for the greatest enrichment it can attain.

C-3 Workshops need to be developed which relate out-of-school educational experiences (field trips, resource people, parents, etc.) to career awareness programs.

C-4 Elementary teachers need in-service programs which will assist them in developing student understanding of the relationships between an individual's career and his overall life style.

E-5 Teachers need professional improvement in order to be confident enough to let a child live with the consequences of his/her decision-making.

F-6 Elementary teachers need teaching strategy improvement which will assist them in preparing students to recognize and understand the advantages and responsibilities associated with working independently, as a member of a team and being supervised or directed.

G-7 In-service development needs to be created whereby other elementary teachers, who have had success in teaching work appreciations and developing aptitudes in students, are provided opportunities to relate these teaching strategies to other elementary teachers.

H-8 In-service development needs to be conducted on a continuing basis for elementary teachers and school administrators which increases community and professional involvement, interaction and communication for implementation of effective career education.

H-9 Workshops need to be developed for elementary teachers which will assist them in preparing minority students to function in, and be change agents in, the environment which they are accustomed to in their respective life styles.

A-10 In-service programs should be developed which assist teachers in creating student information systems relating to self-appraisal, identifying individual strengths and limitations.

B-11 In-service programs need to be developed to help elementary teachers relate occupations to the economic and social aspects of the local community.

C-12 Through in-service experiences, elementary teachers need to discover methods of demonstrating to students the importance of education as a life-long process and the relationships of continuing education to occupational success and satisfaction.

D-13 Elementary teachers need personnel improvement programs which will assist them in developing student understanding of the variety and complexity of careers in the world of work.

E-14 Elementary teachers need in-service which will assist them in teaching students to understand that the decision-making process includes responsible individual or group action in identifying alternatives, selecting the most appropriate courses of action which are consistent with the values and goals in taking necessary steps in implementing action.

F-15 Through in-service education, elementary teachers should be prepared to help students understand the influence of workmanship and skill upon the materials, processes, and products of business and industry.

G-16 Intensive workshops need to be designed which prepare teachers to deal effectively with elementary students with special needs, and thereby optimize aptitude development and work appreciation.

H-17 Professional development of elementary teachers is needed which will assist them in preparing elementary students to recognize that career development is influenced by changing individual and environmental factors, and that these factors may act separately or together.

H-18 Workshops need to be developed for elementary teachers, counselors and administrators which create leadership for involving the community, professional staff and students in assessment of perceived career awareness needs, goals and objectives.

A-19 Elementary teachers need in-service development which provides methodology and instructional strategies that stress the importance of student self-understanding in work and life roles.

B-20 Elementary teachers need to be provided with professional improvement in which they write and develop learning systems which will assist them in preparing students for economic, social, ethical and moral responsibility and accountability to the nation's welfare, growth and development.

C-21 Elementary teachers need workshops which develop specific course content pertaining to communication skills, computational and reasoning skills, and mastery of content knowledge, as applicable to persons with special needs.

D-22 Some elementary teachers may need work experience in order to be effective in relating work, life and family roles to students.

E-23 Developmental programs need to be designed which provide elementary teachers with the opportunity to create hands-on activities related to careers so that learning becomes relevant.

F-24 In-service programs should be provided to enable elementary teachers to help students become familiar with job skill characteristics of each major family of occupations.

G-25 Workshops need to be developed between business, industry and public service organizations and elementary teachers which will provide teachers with insight into job specialization, recognizing that jobs are coordinated in the production, sales and services provided to customers and/or users, and that worker cooperation is essential.

H-26 In-service development for teachers and administrators needs to be carried on which improves teacher and administrator skills in program planning related to teaching strategies and curriculum development.

H-27 Elementary teachers need to be given the opportunity to design learning systems which specify in advance the desired outcomes of individual student performance in relation to occupational goals.

A-28 Elementary teachers need professional improvement which will provide them with in-depth understanding of individual student behavior relating to the nature and existence of the interaction between individual knowledge, self-understanding and career goals.

B-29 Higher education should provide business and industrial experience on a credit internship basis whereby elementary teachers gain in-depth understanding of economics and social responsibility as they relate to the business-industrial community.

C-30 Short seminars need to be developed which relate in-school educational experiences to career concepts so that students understand these relationships.

D-31 Specific programs for elementary teachers need to be designed which develop career awareness instructional materials for black minority youth.

E-32 Career awareness decision-making should be an integral part of the elementary curriculum as it relates to mathematics, science, social studies, communications, etc.,; and in-service development needs to be conducted on a continuing basis in order to implement this philosophy.

F-33 Professional improvement for elementary teachers needs to be established which will assist them in designing teaching strategies that will prepare students to develop understanding of the fundamental aspects of behavioral or interpersonal relationships, generated as a result of the interaction of various occupational and career roles, such as employer, employee, manager, supervisor, worker, team member, associate, professional or para-professional.

G-34 Teachers in the fourth, fifth and sixth grades need development which articulates their teaching systems and optimizes student work aptitudes and appreciations by specifically identifying what should be taught at each grade level.

H-35 Personnel development needs to be designed which provides the elementary teacher with the techniques and procedures for identifying each disadvantaged and handicapped student's characteristics and entrance level.

H-36 Elementary teachers need intensive improvement which provides them with teaching strategies dealing with affective domain areas of learning (creativity, tolerance, morality, honesty, self-discipline, and social awareness) and relating these to careers and life styles.

A-37 Professional improvement of elementary teachers should have some development which directs the major emphasis on the individual self-awareness needs of minority groups and relating this to their specific cultural or ethnic situations.

B-38 Professional improvement of elementary teachers is needed which assists them in preparing disadvantaged and handicapped students to function effectively in the economic and social environment.

C-39 In-service programs must be conducted on a continuing basis for integrating career awareness into the curricula of mathematics, reading, writing, science, and social studies.

D-40 Higher education needs to design programs for elementary teachers which will teach students to understand the ways in which careers relate to the goals, needs and functions of the society.

E-41 Specific in-service programs need to be provided to elementary teachers related to students with special needs or those identified as disadvantaged and handicapped so that these students will be better equipped to make decisions concerning their future life

style and career goals.

F-42 Fourth, fifth, and sixth grade teachers need a continuous program of interaction between grade levels on articulation of teaching content. This will assist them in preparing students to develop the educational and occupational competencies which are important for moving on to the next stage of preparation and entry into an occupational area of interest.

G-43 Elementary teachers need professional improvement which will assist them in teaching students to recognize, that once a task or job is accepted, there are certain responsibilities to himself, employer and fellow workers.

H-44 Elementary teachers need in-service education which prepares them to deal effectively with the various psychomotor domain areas of learning, and relating these skills to student occupational needs through hands-on experiences.

H-45 Elementary teachers need development whereby they are provided opportunities to design performance objectives for each grade level (fourth, fifth and sixth grades) and the procedures to be used in evaluating teaching results.

A-46 Behavioral science programs need to be offered which develop elementary teacher understanding of individual basic needs and processes of acquiring self-fulfillment in life and work.

C-47 Elementary teachers need development programs which assists them in relating to students the necessary educational preparation they will need in order to function successfully on a job.

D-48 Elementary teachers need in-service which will assist them in preparing students to determine the basic characteristics and qualifications related to the preparation and performance of the major tasks associated with various occupational roles.

E-49 Elementary teachers need professional improvement in career awareness which will assist them in preparing students to make decisions pertaining to occupational tasks to be performed on jobs.

F-50 Elementary teachers need professional improvement which will upgrade their competencies related to production and trade tools, equipment and materials associated with a variety of occupational clusters.

G-51 In-service development needs to be established which will assist elementary teachers in preparing disadvantaged and handicapped students to function effectively within the realm of their individual aptitudes, and to appreciate a concern of responsibility to economic and social values.

H-52 In-service programs need to be created whereby elementary teachers and administrators are given opportunities to design systems for involving the parents of the community in the educational process, right in the classroom and in their respective jobs.

H-53 Workshops need to be designed for elementary teachers that identify effective teaching strategies and teaching personnel based on student needs, abilities, interests and attitudes as they relate to occupational goals.

A-54 Elementary teachers need professional improvement which will enable them to assist students in knowing themselves, and to be able to accept and respect their own uniqueness in terms of past developments. As change occurs in students, they will understand the results of their learning, growth, and maturation.

B-55 Elementary teachers need developmental programs which will assist them in preparing students to understand mathematical concepts and the ways these concepts relate to career and life styles.

D-56 School districts should develop in-service programs for teachers which will assist them in preparing elementary students to understand that career aspirations involves progressing through stages of preparation for and the performance of occupational roles, and may involve a change in basic career direction.

E-57 Workshops need to be designed whereby elementary teachers have the opportunity to create instructional materials and teaching strategies relating to identifying, gathering and utilizing sources of information which are related to the career decision-making process.

F-58 In-service for elementary teachers needs to be developed which will enhance their teaching methodology so that students develop an understanding of the materials and processes used which are associated with business, industrial and public service occupations.

G-59 Elementary teachers need in-service improvement which will assist them in preparing students to recognize the personal differences in others. By being able to do this, students will develop tolerance and flexibility in understanding interpersonal relationships.

H-60 Workshops need to be established for elementary teachers which design systems for instructional evaluation in order to see if teachers achieve what they purport to achieve.

H-61 Elementary teachers need development in understanding the total career education philosophy and concept (awareness, exploratory, clusters, and specialization) so that they are better able to relate to students' occupational goals.

A-62 Elementary teachers need professional improvement which is directed

towards the understanding and utilization of the role concept as a way for students in learning about themselves in relation to their cultural and living environment.

B-63 Elementary teachers need professional improvement which will assist them in preparing students to understand, and have knowledge of finance and investments, real estate, insurance, savings and interest earnings, so that they might make better use of their occupational earnings.

F-64 Elementary teachers need in-service development which will assist them in designing teaching strategies whereby students develop the planning and process skills to identify the specific objectives of a task, specify the required resources, identify the necessary steps to complete the task, perform the actual operations and evaluate the final results.

G-65 Elementary teachers need in-service development which will assist them in preparing students to understand the various ways of identifying and describing individual differences in themselves and in others.

H-66 Elementary teachers need development which prepares them to understand the goals, objectives and functions of vocational education service areas (agricultural education, distributive education, business and office education, industrial education, home economics education and consumer education) and understand the relationship of these areas to career education so that students can effectively plan their educational goals.

H-67 Workshops need to be designed on a continuing basis which develop opportunities for elementary teachers, counselors and administrators to serve effectively in leadership roles for implementing career education concept and philosophy.

A-68 Elementary teachers need continuous development and understanding which will assist them in preparing students to understand and recognize the forces of their environment which influences their development and growth relating to social, economic, educational, cultural and occupational success.

B-69 Elementary teachers need in-service programs which will assist them in preparing students to understand the interrelationships between personal economics and life styles.

H-70 Professional improvement should be designed whereby teachers, counselors and administrators jointly meet together to become acquainted with the procedures and processes of effective documentation of local district needs for the implementation of career education.

A-71 In-service development should be provided to elementary teachers which will assist them in preparing students to recognize that

self-knowledge and understanding is related to a system or set of values which is unique to the individual.

B-72 Professional improvement programs are needed to assist elementary teachers in designing career awareness programs which prepare black students to create and design involvement and participation at a greater level in the business and industrial society.

H-73 Elementary teachers need in-service improvement which prepares them to effectively deal with evaluation and accountability of career awareness activities.

B-74 Professional improvement programs need to be developed which assist elementary teachers in preparing students to understand the variety of social and economic contributions which are associated with many occupational areas.

H-75 Elementary teachers need continuous development which will assist them in relating career awareness and the cognitive domain areas of learning (communication skills, mathematic skills, natural science skills, social science skills, fine arts skills and health skills) in preparing elementary students to function effectively in the world of work.

A-76 Elementary teachers and administrators must be prepared to provide paths of excellence leading to all occupational categories, they must not create the traditional academic paths of education.

H-77 Federal, state and local resources (physical, human and financial) need to be allocated at a greater level of priority in order to accomplish long-range and short-range professional improvement for elementary teachers and career awareness.

A-78 Elementary teachers need professional development which prepares them to assist students in learning or understanding the importance of establishing personal and relevant career and life goals and objectives based upon a self-understanding of their individual characteristics.

H-79 Fourth, fifth and sixth grade teachers need in-service programs which will assist them in preparing students to become aware of the various environmental elements which affect career development.

A-80 All elementary teachers need professional improvement in the development to plan and implement strategies for increasing the positive self-concept of all students.

A-81 All elementary teachers need in-service programs which help them relate the personal characteristics and interest of individuals to the work requirements of major occupations.

C-82 Personnel development for elementary teachers is needed whereby materials can be developed for students showing the occupational

requirements and competencies, along with the educational necessities, as it relates to the disadvantaged and handicapped.

B-83 Professional development is needed to prepare qualified instructors to teach in specific areas of careers; this is qualified by success in that career area -- not just teaching about it.

H-84 Elementary teachers, counselors and administrators need developments in the skills of creating a defensible basis for allocating physical, financial and human resources to achieve career education goals and objectives.

Please rank, according to first priority to tenth priority, the top ten needs you believe to be most important for elementary professional development in career education.

1____ 2____ 3____ 4____ 5____ 6____ 7____ 8____

9____ 10____

APPENDIX D

SELECTION OF DELPHI PANEL

OSU

OREGON STATE UNIVERSITY
SCHOOL OF EDUCATION

CORVALLIS, OREGON 97331

June 12, 1972

To: Dr. Wayne Courtney, Chairman
Don Gilles, O.B.E.
Archie Breslin, C.C.O.E.
Dr. Ed. Erickson, Seattle
Marvin Rasmussen, Portland
Dr. H. Ten Pas, E.P.D.A.

From: Bill D. Syhlman

The funding for the research in career awareness in-service personnel development has been finalized. In both Washington and Oregon, the local districts will make all payments to to participants in the research. This amount will be $5,000.00; $2,500.00 in Portland and $2,500.00 in Seattle. Marv. Rasmussen and Ed. Erickson have negotiated the contracts within the respective states. The remaining $1.000.00 will be allocated for costs relating to Delphi panel, tapes and printing of final report, for a total of $6,000.00.

I sincerely appreciate the assistance Marv. and Ed. provided for administrative services and financial arrangements. Don Gilles and Archie Breslin have been absolutely great in taking interest and time in making this research possible.

The first important step in conducting this research is the identification of the Delphi panel. This panel will be selected on the following basis:

1. Archie Breslin: Select two persons from the State of Washington to participate on the panel. One from the C.C.O.E. and one from a teacher education institution.

2. Don Gilles: Select two persons from the State of Oregon to participate on the panel. One from the O.B.E. and one from a teacher education institution.

3. Marv. Rasmussen: Select three persons to be on the panel. One from administration, one elementary teacher from an elementary school located in a high income area, and one elementary teacher from an elementary school located in a high poverty or minority area.

4. Ed. Erickson: Select three persons to be on the panel. One from administration, one elementary teacher from an elementary school located in a high income area, and one elementary teacher from an elementary school located in a high poverty or minority area.

The criteria for selection of persons to serve on the panel is based on the following:

1. The panel participants should have a comprehensive understanding of career awareness as it exists in its present state of being.

2. The panel participants should have had at least one year of direct experience and contact with career awareness programs.

3. The panel participants are selected on the very best judgment of the persons doing the selecting.

It is highly possible that you may wish to serve on the panel instead of selecting someone for the position; please feel free to appoint yourself if you so desire. I would appreciate hearing from you as soon as possible upon your decision as to those persons serving on the panel.

I will be contacting Marv. Rasmussen and Ed. Erickson as to the twenty business adviosry persons participating in the research design. We will also need to make random selections of elementary teachers from fourth, fifth and sixth grades from each of the two cities.

Many thanks for your cooperation and assistance with these initial steps in conducting the research.

Sincerely yours,

Bill D. Syhlman
Project Director

cc: Committee members

APPENDIX E

LIST OF DELPHI PANEL MEMBERS

DELPHI PANEL - CAREER AWARENESS

Mr. Dean Wagaman, Director
Program Development
Coordinating Council for
Occupational Education
216 Old Capitol Building
Olympia, Washington

Dr. Richard Garnder
Career Education
Batcheller Hall
Oregon State University
Corvallis, Oregon

Dr. Sam Porter
Dept. of Industrial Education
Western Washington State Univ.
Bellingham, Washington

Mr. Don Gilles, Coordinator
Program Development and Evaluation
Career Education
942 Lancaster Dr., NE
Salem, Oregon

Mr. Richard Schall
Olympic Hills Elementary School
13018 20th NE Street
Seattle Public Schools
Seattle, Washington

Mrs. Mary Wimer
Hughes Elementary School
7740 - 34th Street SW
Seattle, Washington

Mr. James King
Occupational Education
Seattle Public Schools
2515 Boylston Avenue East
Seattle, Washington

Mr. Ralph A. Wampler
Buckman Elementary School
320 SE 16th Ave
Portland, Oregon

Mrs. Jan Hall
Marysville Elementary School
7733 SE Raymond Street
Portland, Oregon

Mr. Gerald Reed
Kelly Elementary School
9030 SE Cooper Street
Portland, Oregon

APPENDIX F

ROUND ONE OF DELPHI

OSU

OREGON STATE UNIVERSITY
SCHOOL OF EDUCATION

CORVALLIS, OREGON 97331

September 26, 1972

Mr. Dean Wagaman, Director
Coordinating Council for Occupational Education
Program Development
216 Old Capitol Building
Olympia, Washington 98504

Dear Dean:

Thank you for reviewing the initial research proposal on The Identification of In-Service Personnel Needs in Career Awareness for Portland and Seattle Elementary Schools.

Your analysis, revisions and additions of need statements to be included in the research will contribute greatly to the research information necessary for elementary teaching personnel at the fourth, fifth and sixth grade levels. The major purpose of using the Delphi technique is to determine what people in the field believe to be important in personnel development. If career awareness is to make major curriculum and instructional change in elementary schools, it is essential to identify the critical areas of personnel development which will bring about change. Your participation in this project is specifically directed to this task: identifying the personnel development needs in career awareness which are important for educational change in elementary schools.

There are eight major areas to consider as an initial beginning for determining teacher development needs: (1) Individual Self-Awareness, (2) Economical and Social Awareness, (3) Educational Awareness, (4) Awareness of Careers, (5) Individual Decision-Making Abilities, (6) Work Understanding and Job Skills, (7) Work Aptitudes and Appreciations, and (8) Other.

The Delphi research method is employed to identify needs and redefine needs. It is anticipated that three Delphi rounds will provide the necessary research information; however, a fourth round may be necessary if items cannot be validated.

The Rand Corporation, under the direction of Olaf Helmer and his colleagues, developed the Delphi method in the 1950s. The basis of the Delphi method is expert informed intuitive judgment. This is accomplished without face-to-face group meetings. The Delphi procedures is as follows:

(1) Contact is made with Delphi panel members through the use of successive questionnaires and feedback provided by Delphi members is the basis for reconstruction of design.

(2) The initial questionnaire ask that you analyze, reconstruct, evaluate and add to, the need statements. Panel members should Retain, Reject, or Revise each statement. Panel members ard encouraged to add need statements at the conclusion of each major area.

(3) The second questionnaire is to be generated from the analysis of the first Delphi process. Each panel member is asked to rate and evaluate the revised need statements.

(4) The third questionnaire will provide the list which panel members have expressed consensus on pertaining to each specific need statements, and given an opportunity for final review.

The Delphi Technique has been extremely useful in predicting and establishing long-range developments in space research, automation, defense and related areas; it has also been employed in educational research. We believe that the process is useful in acquiring congruency of thought as to career awareness personnel development needs.

We appreciate your interest and professional know-how in working with this project. Enclosed is the first round questionnaire. Please return this questionnaire in the self-addressed envelope which I have enclosed for your convenience.

Yours truly,

Dr. W. Wayne Courtney
Director of Research & Development

Bill D. Syhlman
Project Director

WC:BS:er
Encls.

NAME_____ ADDRESS_____

TELEPHONE_____

_____

_____

DELPHI QUESTIONNAIRE

ROUND I

Attached is the Delphi questionnaire for Round One in identifying career awareness in-service personnel development needs of elementary teachers at fourth, fifth and sixth grade levels. As you will recall, the study is specifically directed to Portland and Seattle elementary schools. We are attempting to measure differences between cities, between high poverty or minority areas and average or above average income areas and control and experimental groups.

The final process for collecting data from fourth, fifth and sixth grade teachers employes the Q-Sort Card process with motivational projective technique being applied to small groups of ten teachers each. An example of a Q-Card is as follows:

> Elementary teachers need actual employment experiences in business and industry, and higher education should design programs which provide internships in business and industry.
>
> 5____ 4____ 3____ 2____ 1____

5 - - Considered to be very high in need.
4 - - Considered to be above average in need.
3 - - Considered to be average in need.
2 - - Considered to be below average in need.
1 - - Considered to be very low in need.

The major objective of the Delphi panel is to determine the need statements which are to appear in the final card deck. There may be statements that you wish to add, please list these at the end of each major section.

Please return the form as soon as completed. Your name will be anonymous in tabulations of results.

Directions: Read each statement and place an (X) if you Retain or Reject the statement. If you wish to revise the statement, do so in the space provided for under Revise. Please make additions at the conclusion of each major section.

Major Area: Individual Self-Awareness

1. Elementary teachers need in-service development which provides methodology and instructional strategies that stress the importance of student self-understanding in work and life roles.

   Retain_____ Reject_____ Revise_____

2. In-service programs should be developed which create student information systems relating to self-appraisal, identifying individual strengths and limitations.

   Retain_____ Reject_____ Revise_____

3. Teachers need developmental programs which provide in-depth understanding of individual student behavior relating to the nature and existence of the interaction between individual knowledge, self-understanding and career goals.

   Retain_____ Reject_____ Revise_____

4. All elementary teachers need in-service development which directs the major emphasis on the individual self-awareness needs of minority groups and relating this to their specific cultural or ethnic situations.

   Retain_____ Reject_____ Revise_____

5. Elementary teachers should be provided a continuous personnel development program which emphasizes the necessary teaching competencies for working with students with special needs as it relates to individual self-awareness.

Retain_____ Reject_____ Revise_____

_____

_____

6. In-service development should provide teachers with the understanding and utilization of the role concept as as way for students learning about themselves in relation to their cultural and living environment.

Retain_____ Reject_____ Revise_____

_____

_____

7. Elementary teachers need programs which assist students in knowing themselves, understand to accept and respect their own uniqueness both in terms of their past developments and as changes occur in them, understand the results of learning, growth and maturation.

Retain_____ Reject_____ Revise_____

_____

_____

8. All elementary teachers need continuous development and understanding which prepares students to understand and recognize the forces of their environment which influences their development and growth relating to social, economic, educational, cultural and occupational success.

Retain_____ Reject_____ Revise_____

_____

_____

9. In-service development should be provided to elementary teachers which prepares students to recognize that self-knowledge and understanding is related to a system or set of values which is unique to the individual.

Retain_____ Reject_____ Revise_____

_____

_____

10. Behavioral science programs need to be offered which develop elementary teacher understanding of individual basic needs and processes of acquiring self-fulfillment in life and work.

Retain_____ Reject_____ Revise_____

_____

_____

11. All elementary teachers need in-servi-e development which prepares students to learn or understand the importance of establishing personal and relevant career and life goals and objectives based upon a self-understanding of their individual characteristics.

Retain_____ Reject_____ Revise_____

_____

_____

Additional need statements for elementary teachers and career awareness.

1. _____

_____

2. _____

_____

3. _____

_____

4. _____

_____

5. _____

_____

APPENDIX G

ITEMS FROM ROUND ONE

ITEMS FROM FIRST ROUND

1. Elementary teachers need in-service development which provides methodology and instructional strategies that stress the importance of student self-understanding in work and life roles.

2. In-service programs should be developed which assist teachers in creating student information systems relating to self-appraisal, identifying individual strengths and limitations.

3. Elementary teachers need professional improvement which will provide them with in-depth understanding of individual student behavior relating to the nature and existence of the interaction between individual knowledge, self-understanding and career goals.

4. Round Two

5. Elementary teachers should be provided a continuous personnel improvement program which emphasizes the necessary teaching competencies for working with students with special needs as it relates to individual self-awareness.

6. Round Two

7. Elementary teachers need professional improvement which will enable them to assist students in knowing themselves, and to be able to accept and respect their own uniqueness in terms of past developments. As change occurs in students, they will understand the results of their learning, growth, and maturation.

8. Elementary teachers need continuous development and understanding which will assist them in preparing students to understand and recognize the forces of their environment which influences their development and growth relating to social, economic, educational, cultural and occupational success.

9. In-service development should be provided to elementary teachers which will assist them in preparing students to recognize that self-knowledge and understanding is related to a system or set of values which is unique to the individual.

10. Behavioral science programs need to be offered which develop elementary teacher understanding of individual basic needs and processes of acquiring self-fulfillment in life and work.

11. Round Two

12. Elementary teachers need in-service programs which will assist them in preparing students to understand the interrelationships between personal economics and life styles.

13. Round Two

14. Professional improvement programs need to be developed which assist elementary teachers in preparing students to understand the variety of social and economic contributions which are associated with many occupational areas.

15. Elementary teachers need developmental programs which will assist them in preparing students to understand mathematical concepts and the ways these concepts relate to career and life roles.

16. Round Two

17. Round Two

18. Higher education should provide business and industrial experience on a credit internship basis whereby elementary teachers gain in-depth understanding of economics and social responsibility as they relate to the business-industrial community.

19. Round Two

20. Round Two

21. Elementary teachers need development programs which assists them in relating to students the necessary educational preparation they will need in order to function successfully on a job.

22. Round Two

23. In-service programs must be conducted on a continuing basis for integrating career awareness into the curricula of mathematics, reading, writing, science, and social studies.

24. Elementary teachers need workshops which develop specific course content pertaining to communication skills, computational and reasoning skills, and mastery of content knowledge, as applicable to persons with special needs.

25. Short seminars need to be developed which relate in-school educational experiences to career concepts so that students understand these relationships.

26. Elementary teachers need personnel improvement programs which will assist them in developing student understanding of the variety and complexity of careers in the world of work.

27. Round Two

28. Specific programs for elementary teachers need to be designed which develop career awareness instructional materials for black minority youth.

29. Higher education needs to design programs for elementary teachers which will teach students to understand the ways in which careers relate to the goals, needs and functions of the society.

30. Elementary teachers need in-service which will assist them in preparing students to determine the basic characteristics and qualifications related to the preparation and performance of the major tasks associated with various occupational roles.

31. School districts should develop in-service programs for teachers which will assist them in preparing elementary students to understand that career aspirations involves progressing through stages of preparation for and the performance of occupational roles, and may involve a change in basic career direction.

32. Elementary teachers need in-service programs which will assist them in developing student understanding of the relationships between an individual's career and his overall life style.

33. Round Two

34. Workshops need to be designed whereby elementary teachers have the opportunity to create instructional materials and teaching strategies relating to identifying, gathering and utilizing sources of information which are related to the career decision-making process.

35. Specific in-service programs need to be provided to elementary teachers related to students with special needs or those identified as disadvantaged and handicapped so that these students will be better equipped to make decisions concerning their future life style and career goals.

36. Career awareness decision making should be an integral part of the elementary curriculum as it relates to mathematics, science, social studies, communications, etc.,; and in-service development needs to be conducted on a continuing basis in order to implement this philosophy.

37. Elementary teachers need in-service which will assist them in teaching students to understand that the decision-making process includes responsible individual or group action in identifying alternatives, selecting the most appropriate courses of action which are consistent with the values and goals in taking necessary steps in implementing action.

38. Round Two

39. Developmental programs need to be designed which provide elementary teachers with the opportunity to create hands-on activities related to careers so that learning becomes relevant.

40. Elementary teachers need in-service development which will assist them in designing teaching strategies whereby students develop the planning and process skills to identify the specific objectives of a task, specify the required resources, identify the necessary steps to complete the task, perform the actual operations and evaluate the final results.

41. In-service for elementary teachers needs to be developed which will enhance their teaching methodology so that students develop an understanding of the materials and processes used which are associated with business, industrial and public service occupations.

42. Round Two

43. Professional improvement for elementary teachers needs to be established which will assist them in designing teaching strategies that will prepare students to develop understanding of the fundamental aspects of behavioral or interpersonal relationships, generated as a result of the interaction of various occupational and career roles, such as employer, employee, manager, supervisor, worker, team member, associate, professional or para-professional.

44. Fourth, fifth and sixth grade teachers need a continuous program of interaction between grade levels on articulation of teaching content. This will assist them in preparing students to develop the educational and occupational competencies which are important for moving on to the next stage of preparation and entry into an occupational area of interest.

45. Round Two

46. Elementary teachers need teaching strategy improvement which will assist them in preparing students to recognize and understand the advantages and responsibilities associated with working independently, as a member of a team and being supervised or directed.

47. Round Two

48. In-service development needs to be established which will assist elementary teachers in preparing disadvantaged and handicapped students to function effectively within the realm of their individual aptitudes, and to appreciate a concern of responsibility to economic and social values.

49. Elementary teachers need in-service improvement which will assist them in preparing students to recognize the personal differences in others. By being able to do this, students will develop tolerance and flexibility in understanding interpersonal relationships.

50. Elementary teachers need in-service development which will assist them in preparing students to understand the various ways of identifying and describing individual differences in themselves and in others.

51. Teachers in the fourth, fifth and sixth grades need development which articulates their teaching systems and optimizes student work aptitudes and appreciations by specifically identifying what should be taught at each grade level.

52. Workshops need to be developed between business, industry and public service organizations and elementary teachers which will provide teachers with insight into job specialization, recognizing that jobs are coordinated in the production, sales and services provided to customers and/or users, and that worker cooperation is essential.

53. In-service development needs to be created whereby other elementary teachers, who have had success in teaching work appreciations and developing aptitudes in students, are provided opportunities to relate these teaching strategies to other elementary teachers.

Page

54. Intensive workshops need to be designed which prepare teachers to deal effectively with elementary students with special needs, and thereby optimize aptitude development and work appreciation.

55. Fourth, fifth and sixth grade teachers need in-service programs which will assist them in preparing students to become aware of the various environmental elements which affect career development.

56. Round Two

57. Workshops need to be developed for elementary teachers which will assist them in preparing minority students to function in, and be change agents in, the environment which they are accustomed to in their respective life styles.

58. In-service development needs to be conducted on a continuing basis for elementary teachers and school administrators which increases community and professional involvement, interaction and communication for implementation of effective career educstion.

59. Workshops need to be developed for elementary teachers, counselors and administrators which create leadership for involving the community, professional staff and students in assessment of perceived career awareness needs, goals and objectives.

60. In-service development for teachers and administrators needs to be carried on which improves teacher and administrator skills in program planning related to teaching strategies and curriculum development.

61. Workshops need to be designed on a continuing basis which develop opportunities for elementary teachers, counselors and administrators to serve effectively in leadership roles for implementing career education concept and philosophy.

62. Elementary teachers need in-service improvement which prepares them to effectively deal with evaluation and accountability of career awareness activities.

63. Round Two

64. Round Two

65. Elementary teachers need continuous development which will assist them in relating career awareness and the cognitive domain areas of learning (communication skills, mathematic skills, natural science skills, social science skills, fine arts skills and health skills) in preparing elementary students to function effectively in the world of work.

66. Elementary teachers need in-service education which prepares them to deal effectively with the various psychomotor domain areas of learning, and relating these skills to student occupational needs through hands-on experiences.

67. Elementary teachers need intensive improvementwhich provides them with teaching strategies dealing with affective domain areas of learning (creativity, tolerance, morality, honesty, self-discipline and social awareness) and relating these to careers and life styles.

68. Elementary teachers need development whereby they are provided opportunities to design performance objectives for each grade level (fourth, fifth, and sixth grades) and the procedures to be used in evaluating teaching results.

69. Personnel development needs to be designed which provides the elementary teacher with the techniques and procedures for identifying each disadvantaged and handicapped student's characteristics and entrance level.

70. Elementary teachers need to be given the opportunity to design learning systems which specify in advance the desired outcomes of individual student performance in relation to occupational goals.

71. Workshops need to be established for elementary teachers which design systems for instructional evaluation in order to see if teachers achieve what they purport to achieve.

72. Workshops need to be designed for elementary teachers that identify effective teaching strategies and teaching personnel based on student needs, abilities, interests and attitudes as they relate to occupational goals.

73. In-service programs need to be created whereby elementary teachers and administrators are given opportunities to design systems for involving the parents of the community in the educational process, right in the classroom and in their respective jobs.

74. Elementary teachers need development which prepares them to understand the goals, objectives and functions of vocational education service areas (agricultural education, distributive education, business and office education, industrial education, home economics education and consumer education) and understand the relationship of these areas to career education so that students can effectively plan their educational goals.

75. Elementary teachers need development in understanding the total career education philosophy and concept (awareness, exploratory, clusters, and specialization) so that they are better able to relate to students' occupational goals.

76. Federal, state, and local resources (physical, human and financial) need to be allocated at a greater level of priority in order to accomplish long-range and short-range professional improvement for elementary teachers and career awareness.

APPENDIX H

ROUND TWO OF DELPHI

OSU

OREGON STATE UNIVERSITY
SCHOOL OF EDUCATION

CORVALLIS, OREGON 97331

November 9, 1972

TO: Delphi Members

FROM: Bill D. Syhlman, Project Director

SUBJECT: Round Two of Delphi Technique for Career Awareness Project

Thank you for responding to the first Delphi Round for identifying in-service personnel development needs in career awareness. There were several items which acquired group consensus on the first round; these will be revised slightly and included in the final research process. Enclosed are the tallies for round one. Please examine it carefully before responding to the second round.

The Second Round Delphi includes revised statements, non-consensus statements and new statements submitted by Delphi members. Please read the instructions and return as soon as possible.

Round Three will include only those items which did not acquire consensus, and you will be asked to reconsider the statements for final analysis.

Thank you for your quick response and assistance in completing rounds one and two. Your suggestions have been tremendous.

BDS:er
Encls.

ROUND TWO

Delphi Technique

Identification of In-Service Personnel Development Needs in Career Awareness for Portland and Seattle Elementary Schools

---

Directions: Section I are the statements which need to be re-examined from Round One. Please make your very best professional intuitive judgments on the statements listed in this section. Refer to the tally sheet to see your response from the last round.

Section II are new statements presented in Round One from Delphi members. Give your very best consideration to these items.

The needs rating scale for your responses is as follows:

6 - - Considered to be extremely high in need.
5 - - Considered to be very high in need.
4 - - Considered to be above average in need.
3 - - Considered to be below average in need.
2 - - Considered to be very low in need.
1 - - Considered to be of no need at all.

Please place an (X) for your response in the appropriate blank space for each item. DO NOT OMIT ANY ITEMS.

SECTION I

REVISED AND REJECTED STATEMENTS FROM ROUND ONE

Individual Self-Awareness

4. Professional improvement of elementary teachers should have some development which directs the major emphasis on the individual self-awareness needs of minority groups and relating this to their specific cultural or ethnic situations.

6 5 4 3 2 1

6. Elementary teachers need professional improvement which is directed towards the understanding and utilization of the role concept as a way for students in learning about themselves in relation to their cultural and living environment.

6 5 4 3 2 1

11. Elementary teachers need professional development which prepares them to assist students in learning or understanding the importance of establishing personal and relevant career and life goals and objectives based upon a self-understanding of their individual characteristics.

6 5 4 3 2 1

Economic and Social Awareness

13. Professional improvement programs are needed to assist elementary teachers in designing career awareness programs which prepare black students to create and design involvement and participation at a greater level in the business and industrial society.

6 5 4 3 2 1

16. Elementary teachers need professional improvement which assist them in preparing students to understand, and have knowledge of finance and investments, real estate, insurance, savings and interest earnings, so that they might make better use of their occupational earnings.

6 5 4 3 2 1

17. Elementary teachers need to be provided with professional improvement in which they write and develop learning systems which will assist them in preparing students for economic, social, ethical and moral responsibility and accountability to the nation's welfare, growth and development.

6 5 4 3 2 1

19. Professional improvement of elementary teachers is needed which assists them in preparing disadvantaged and handicapped students to function effectively in the economic and social environment.

6 5 4 3 2 1

20. Elementary teachers need professional improvement in international economics; by preparing students in this area, they will be able to relate their occupational responsibilities to the nation and the rest of the world.

6 5 4 3 2 1

Educational Awareness

22. Personnel development for elementary teachers is needed whereby materials can be developed for students showing the occupational requirements and competencies, along with the educational necessities, as it relates to the disadvantaged and handicapped.

6 5 4 3 2 1

Awareness of Careers

27. Some elementary teachers may need work experience in order to be effective in relating work, life and family roles to students.

6 5 4 3 2 1

Individual Decision-Making Abilities

33. Elementary teachers need professional improvement in career awareness which will assist them in preparing students to make decisions pertaining to occupational tasks to be performed on jobs.

6 5 4 3 2 1

(cont...)

Work Understanding and Job Skills

42. Elementary teachers need professional improvement which will upgrade their competencies related to production and trade tools, equipment and materials associated with a variety of occupational clusters.

6 5 4 3 2 1

45. Professional improvement of elementary teachers is needed which will assist them in preparing students to develop the necessary entry level skills appropriate for employment in a specific career area of interest.

6 5 4 3 2 1

Work Aptitudes and Appreciations

47. Elementary teachers need professional improvement which will assist them in teaching students to recognize, that once a task or job is accepted, there are certain responsibilities to himself, employer and fellow workers.

6 5 4 3 2 1

Other Areas

56. Professional development of elementary teachers is needed which will assist them in preparing elementary students to recognize that career development is influenced by changing individual and environmental factors, and that these factors may act separately or together.

6 5 4 3 2 1

63. Professional improvement should be designed whereby teachers, counselors and administrators jointly meet together to become acquainted with the procedures and processes of effective documentation of local district needs for the implementation of career education.

6 5 4 3 2 1

SECTION II

NEW ITEMS SUBMITTED BY DELPHI MEMBERS

Individual Self-Awareness

1. All elementary teachers need professional improvement in the development to plan and implement strategies for increasing the positive self concept of all students.

   6 5 4 3 2 1

2. All elementary teachers need in-service programs which help them relate the personal characteristics and interest of individuals to the work requirements of major occupations.

   6 5 4 3 2 1

3. Elementary teachers need professional improvement which develops an internalized belief in eschewing the attachment of social status to occupational categories.

   6 5 4 3 2 1

4. Elementary teachers and administrators must be prepared to provide paths of excellence leading to all occupational categories; they must not create the traditional academic paths of education.

   6 5 4 3 2 1

Economic and Social Awareness

5. Professional development is needed to prepare qualified instructors to teach in specific areas of careers; this is qualified by success in that career area -- not just teaching about it.

   6 5 4 3 2 1

6. In-service programs need to be developed to help elementary teachers relate occupations to the economic and social aspects of the local community.

   6 5 4 3 2 1

7. Elementary teachers need professional improvement in developing an awareness of the necessity of that cultural expertise which would enable a purchasing power earner to expend that purchasing power for the greatest enrichment it can attain.

   6 5 4 3 2 1

Education Awareness

8. Through in-service experiences, elementary teachers need to discover methods of demonstrating to students the importance of education as a life-long process and the relationships of continuing education to occupational success and satisfaction.

6 5 4 3 2 1

9. Workshops need to be developed which relate out-of-school educational experiences (field trips, resource people, parents, etc.) to career awareness programs.

6 5 4 3 2 1

Awareness of Careers

Individual Decision-Making Abilities

10. Teachers need professional improvement in order to be confident enough to let a child live with the consequences of his/her decision-making.

6 5 4 3 2 1

Work Understanding and Job Skills

11. Through in-service education, elementary teachers should be prepared to help students understand the influence of workmanship and skill upon the materials, processes, and products of business and industry.

6 5 4 3 2 1

12. In-service programs should be provided to enable elementary teachers to help students become familiar with job skill characteristics of each major family of occupations.

6 5 4 3 2 1

13. Teachers need to be aware that job skills are necessary industrial arts education, while career education, plus at least the art of need serving and the product expenditure of its recompense.

6 5 4 3 2 1

Work Aptitudes and Appreciations

14. Professional elementary teacher improvement is needed which creates the best example of adjustment to a career role has to be that which the teacher provides.

6 5 4 3 2 1

15. Through professional improvement, career and life style awareness and its appropriate teaching strategies could cause almost every child to fit into a school situation.

6 5 4 3 2 1

THE IDENTIFICATION OF IN-SERVICE PERSONNEL NEEDS IN CAREER AWARENESS FOR PORTLAND AND SEATTLE ELEMENTARY SCHOOLS

Round One of the Delphi produced the following results. These are for your information in responding to Round Two. The RED (X) is the response you made on Round One.

ITEM	ACCEPT	REJECT	REVISE
1.	9 X	1	0
2.	9 X	1	0
3.	7 X	1	2
4.	4 X	1	5
5.	7 X	2	1
6.	5	3 X	2
7.	7 X	0	3
8.	7 X	2	1
9.	7 X	2	1
10.	7 X	2	1
11.	6 X	2	2
12.	7 X	0	3
13.	3 X	6	1
14.	8 X	1	1
15.	8 X	1	1
16.	5 X	3	2
17.	5 X	4	1
18.	7 X	1	2
19.	5 X	5	0
20.	5 X	3	2
21.	8 X	1	1
22.	6 X	3	1
23.	8	1	1 X

ITEM	ACCEPT	REJECT	REVISE
24.	7	3	0 X
25.	9 X	0	1
26.	9 X	1	0
27.	4	5 X	1
28.	7	2 X	1
29.	7 X	2	1
30.	7 X	2	1
31.	8 X	1	1
32.	8 X	1	1
33.	5 X	3	2
34.	9 X	1	0
35.	9 X	1	0
36.	8 X	1	1
37.	7 X	2	1
38.	5 X	3	2
39.	7 X	2	1
40.	7 X	3	0
41.	9 X	0	1
42.	6 X	3	1
43.	8 X	1	1
44.	10 X	0	0
45.	3 X	7	0
46.	8 X	1	1
47.	5 X	3	2
48.	7 X	3	0
49.	8 X	0	2
50.	7 X	2	1

ITEM	ACCEPT	REJECT	REVISE
51.	9 X	1	0
52.	9 X	0	1
53.	10 X	0	0
54.	8 X	1	1
55.	8 X	2	0
56.	6 X	3	1
57.	7 X	1	2
58.	9 X	1	0
59.	9 X	1	0
60.	9 X	1	0
61.	9 X	1	0
62.	8 X	2	0
63.	4 X	4	2
64.	6 X	4	0
65.	9 X	1	0
66.	9 X	1	0
67.	10 X	0	0
68.	8 X	2	0
69.	7 X	3	0
70.	8 X	2	0
71.	7 X	3	0
72.	9 X	1	0
73.	9 X	1	0
74.	8 X	2	0
75.	10 X	0	0
76.	8 X	1	1

APPENDIX I

ROUND THREE OF DELPHI

ROUND THREE
Delphi Process
Career Awareness Personnel Development Needs

The following items did not gain consensus from Delphi panel members in round two. Reconsider these items for final analysis; refer to the Analysis of Items to see group response for final reaction.

Directions: You are to either accept or reject the statements; please place an (X) for your response in the appropriate blank.

Section I Items

20. Elementary teachers need professional improvement in international economics; by preparing students in this area, they will be able to relate their occupational responsibilities to the nation and the rest of the world.

Accept___ Reject X

45. Professional improvement of elementary teachers is needed which will assist them in preparing students to develop the necessary entry level skills appropriate for employment in a specific career area of interest.

Accept___ Reject X

Section II Items

3. Elementary teachers need professional improvement which develops an internalized belief in eschewing the attachment of social status to occupational categories.

Accept___ Reject X

5. Professional development is needed to prepare people who can teach in specific areas of careers; this is qualified by success in that career area--not just teaching about it.

Accept___ Reject X

13. Teachers need to be aware that job skills are necessary industrial arts education, while career education is that plus at least the art of need serving and the prudent expenditure of its recompense.

Accept___ Reject X

14. Professional elementary teacher improvement is needed which creates the best example of adjustment to a career role which has to be that which the teacher provides.

Accept___ Reject X

15. Through professional improvement, career and life style awareness and its appropriate teaching strategies could cause almost every child to fit into a school situation.

Accept___ Reject X

Items 38 and 64 were omitted from round two by error. Please give your reaction to these for final analysis.

38. Personnel development programs need to be designed which will interrelate mathematics and decision-making activities to occupational activities. (From round one, 5 accepted, 3 rejected and 2 revised this statement.)

Accept____ Reject X

64. Elementary teachers, counselors and administrators need development in the skills of creating a defensible basis for allocating physical, financial and human resources to achieve career education goals and objectives (From round one, 6 accepted and 4 rejected this statement.)

Accept X Reject____

ANALYSIS OF ITEMS

Delphi Panel Responses from Round Two

As you will recall, panel members were asked to rate items on the following need scale for round two:

6 — Considered to be extremely high in need.
5 — Considered to be very high in need.
4 — Considered to be above average in need.
3 — Considered to be below average in need.
2 — Considered to be very low in need.
1 -- Considered to be of no need at all.

The mean scores for all round two items are below. Please give you very best informed intuitive judgment on the items underlined for final consideration.

Section I

Item No.	Mean Score
4	4.1
6	4.1
11	5.2
13	4.0
16	4.2
17	4.0
19	4.2
20	3.1
22	4.4
27	4.6
33	4.5
42	4.1
45	2.7
47	5.1
56	4.2
63	4.8

Section II

1	5.0
2	5.2
3	3.7
4	4.2
5	3.8
6	4.7
7	4.1
8	4.6
9	5.3
10	4.0
11	5.0
12	5.1
13	2.5
14	2.6
15	3.6

ANALYSIS OF ITEMS

Delphi Panel Responses from Round Two

As you will recall, panel members were asked to rate items on the following need scale for round two:

6.-- Considered to be extremely high in need.
5.-- Considered to be very high in need.
4.-- Considered to be above average in need.
3.-- Considered to be below average in need.
2.-- Considered to be very low in need.
1.-- Considered to be of no need at all.

The results from your responses are as follows: The X bar is the mean score for each item number. Those that scored less than 4.0 need to be reconsidered in round three. Please give your very best informed intuitive judgment on these items for final consideration.

Section I

Item No.	Need Rating	Responses	X_i	$\bar{X}$
4	6	1	6	
	5	4	20	
	4	2	8	
	3	1	3	
	2	2	4	
	1	0	0	
		X=10	41	$\bar{X}$=4.1 (Consensus)
6	6	1	6	
	5	3	15	
	4	3	12	
	3	2	6	
	2	1	2	
	1	0	0	
		X=10	41	$\bar{X}$=4.1 (Consensus)
11	6	4	24	
	5	4	20	
	4	2	8	
	3	0	0	
	2	0	0	
	1	0	0	
		X=10	52	$\bar{X}$=5.2 (Consensus)

Item No.	Need Rating	Responses	X_i	$\bar{X}$
13	6	2	12	
	5	2	10	
	4	3	12	
	3	1	3	
	2	1	2	
	1	1	1	
		X=10	40	$\bar{X}$=4.0 (Consensus)
16	6	2	12	
	5	2	10	
	4	3	12	
	3	2	6	
	2	1	2	
	1	0	0	
		X=10	42	$\bar{X}$=4.2 (Consensus)
17	6	2	12	
	5	2	10	
	4	4	16	
	3	0	0	
	2	0	0	
	1	2	2	
		X=10	40	$\bar{X}$=4.0 (Consensus)

2

Item No.	Need Rating	Responses	X_i	$\bar{X}$
19	6	2	12	
	5	1	5	
	4	5	20	
	3	1	3	
	2	1	2	
	1	0	0	
		X=10	42	$\bar{X}$=4.2 (Consensus)
20	6	2	12	
	5	1	5	
	4	4	16	
	3	1	3	
	2	3	6	
	1	1	1	
		X=10	31	$\bar{X}$=3.1 (Non-Consensus)
22	6	1	6	
	5	2	10	
	4	7	28	
	3	0	0	
	2	0	0	
	1	0	0	
		X=10	44	$\bar{X}$=4.4 (Consensus)
27	6	2	12	
	5	3	15	
	4	4	16	
	3	1	3	
	2	0	0	
	1	0	0	
		X=10	46	$\bar{X}$=4.6 (Consensus)
33	6	4	24	
	5	1	5	
	4	3	12	
	3	1	3	
	2	0	0	
	1	1	1	
		X=10	45	$\bar{X}$=4.5 (Consensus)

Item No.	Need Rating	Responses	X_i	$\bar{X}$
42	6	1	6	
	5	4	20	
	4	2	8	
	3	1	3	
	2	2	4	
	1	0	0	
		X=10	41	$\bar{X}$=4.1 (Consensus)
45	6	2	12	
	5	1	5	
	4	0	0	
	3	1	3	
	2	1	2	
	1	5	5	
		X=10	27	$\bar{X}$=2.7 (Non-Consensus)
47	6	6	36	
	5	0	0	
	4	3	12	
	3	1	3	
	2	0	0	
	1	0	0	
		X=10	51	$\bar{X}$=5.1 (Consensus)
56	6	3	18	
	5	1	5	
	4	3	12	
	3	1	3	
	2	2	4	
	1	0	0	
		X=10	42	$\bar{X}$=4.2 (Consensus)
63	6	4	24	
	5	4	20	
	4	0	0	
	3	1	3	
	2	0	0	
	1	1	1	
		X=10	48	$\bar{X}$=4.8 (Consensus)

3

Section II

Item No.	Need Rating	Responses	X_i	$\bar{X}$
1	6	5	30	
	5	2	10	
	4	1	4	
	3	2	6	
	2	0	0	
	1	0	0	
		X=10	50	$\bar{X}$=5.0 (Consensus)
2	6	5	30	
	5	3	15	
	4	1	4	
	3	1	3	
	2	0	0	
	1	0	0	
		X=10	52	$\bar{X}$=5.2 (Consensus)
3	6	2	12	
	5	1	5	
	4	3	12	
	3	2	6	
	2	0	0	
	1	2	2	
		X=10	37	$\bar{X}$=3.7 (Non-Consensus)
4	6	4	24	
	5	2	10	
	4	1	4	
	3	0	0	
	2	1	2	
	1	2	2	
		X=10	42	$\bar{X}$=4.2 (Consensus)
5	6	3	18	
	5	3	15	
	4	0	0	
	3	0	0	
	2	1	2	
	1	3	3	
		X=10	38	$\bar{X}$=3.8 (Non-Consensus)

Item No.	Need Rating	Responses	X_i	$\bar{X}$
6	6	5	30	
	5	2	10	
	4	1	4	
	3	0	0	
	2	1	2	
	1	1	1	
		X=10	47	$\bar{X}$=4.7 (Consensus)
7	6	3	18	
	5	1	5	
	4	2	8	
	3	3	9	
	2	0	0	
	1	1	1	
		X=10	41	$\bar{X}$=4.1 (Consensus)
8	6	4	24	
	5	1	5	
	4	4	16	
	3	0	0	
	2	0	0	
	1	1	1	
		X=10	46	$\bar{X}$=4.6 (Consensus)
9	6	5	30	
	5	3	15	
	4	2	8	
	3	0	0	
	2	0	0	
	1	0	0	
		X=10	53	$\bar{X}$=5.3 (Consensus)
10	6	2	12	
	5	2	10	
	4	3	12	
	3	1	3	
	2	1	2	
	1	1	1	
		X=10	40	$\bar{X}$=4.0 (Consensus)

4

Item No.	Need Rating	Responses	X_1	$\bar{X}$
11	6	5	30	
	5	1	5	
	4	3	12	
	3	1	3	
	2	0	0	
	1	0	0	
		X=10	50	$\bar{X}$=5.0 (Consensus)
12	6	5	30	
	5	2	10	
	4	2	8	
	3	1	3	
	2	0	0	
	1	0	0	
		X=10	51	$\bar{X}$=5.1 (Consensus)
13	6	2	12	
	5	0	0	
	4	1	4	
	3	1	3	
	2	0	0	
	1	6	6	
		X=10	25	$\bar{X}$=2.5 (Non- Consensus)
14	6	1	6	
	5	1	5	
	4	2	8	
	3	0	0	
	2	1	2	
	1	5	5	
		X=10	26	$\bar{X}$=2.6 (Non-Consensus)
15	6	5	30	
	5	0	0	
	4	0	0	
	3	0	0	
	2	1	2	
	1	4	4	
		X=10	36	$\bar{X}$=3.6 (Non-Consensus)

APPENDIX J

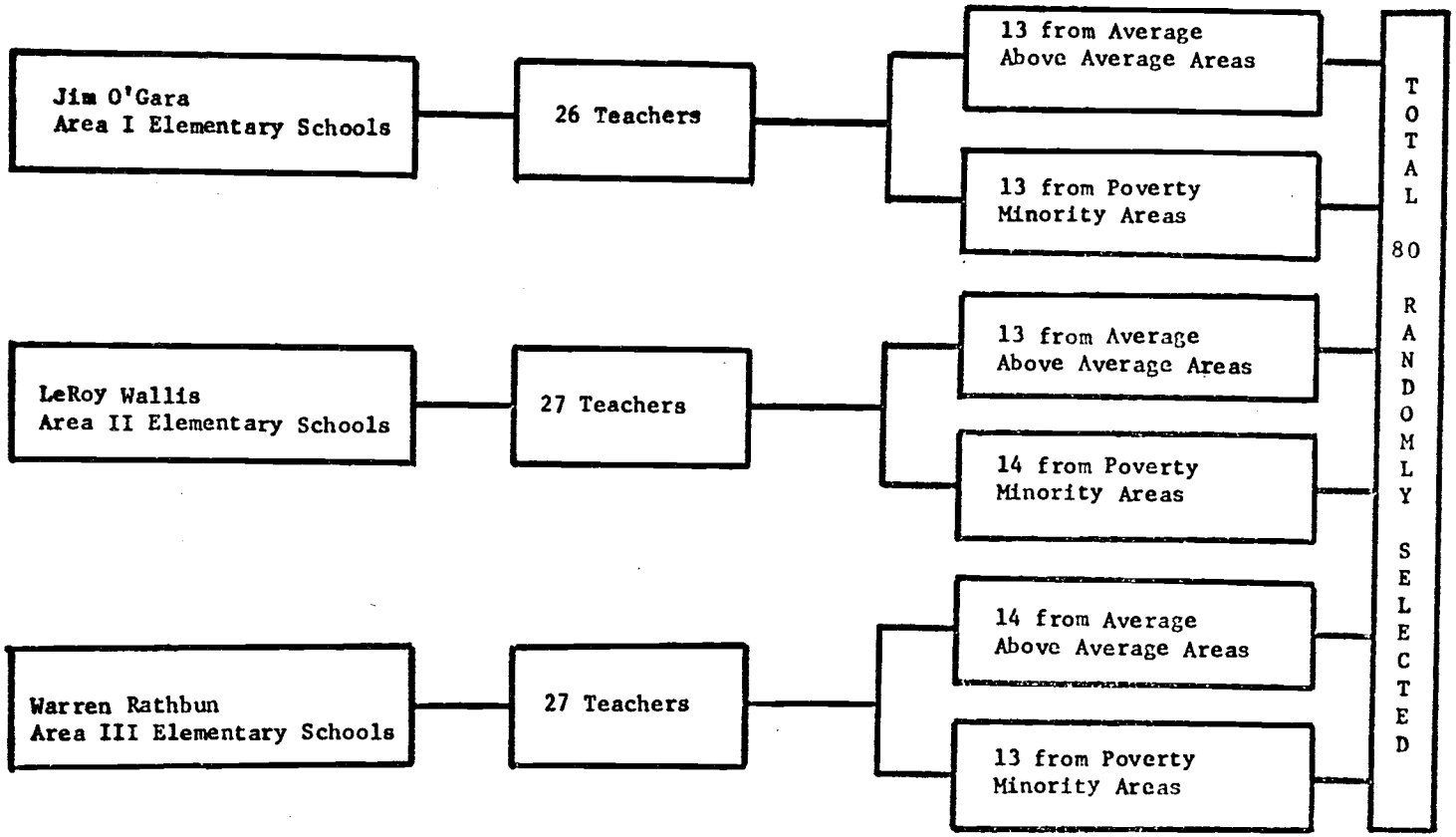
PORTLAND RESEARCH DATA COLLECTION PROCESS

TO: M. Rasmussen
L. Carpenter
W. Rathbun
L. Wallis
J. O'Gara

FROM: W. D. Syhlman

PORTLAND RESEARCH DATA COLLECTION PROCESS

The needs of randomly selected fourth, fifth, and sixth grade elementary teachers are as follows:



It is recommended that advisory persons be selected on the following basis:

ADVISORY PERSONS FOR EXPERIMENTAL GROUPS - AVERAGE TO ABOVE AVERAGE INCOME AREA ELEMENTARY SCHOOLS

1. _____ (Area I)
2. _____ (Area I)
3. _____ (Area I)
4. _____ (Area II)
5. _____ (Central)

ADVISORY PERSONS FOR EXPERIMENTAL GROUPS - HIGH POVERTY AND MINORITY AREA ELEMENTARY SCHOOLS

1. _____ (Area II)
2. _____ (Area III)
3. _____ (Area III)
4. _____ (Area III)
5. _____ (Central)

APPENDIX K

RANDOM SAMPLE SELECTION

October 19, 1972

TO: Marv Rasmussen
Ed Erickson

FROM: Bill D. Syhlman

*Research needs for Portland and Seattle based career awareness projects.

1.0 Needs for elementary schools located average or above average income areas.

1.1 Select 20 elementary teachers to participate in the control groups. Preferably two or three elementary schools. Ten fourth, fifth and sixth grade teachers from each school. The selection must be done on a random basis.

1.2 Select five advisory committee members to work with the experimental groups.

1.3 Select 20 elementary teachers to participate in experimental groups. Preferably two or three elementary schools. Ten fourth, fifth and sixth grade teachers from one school and ten from another.

1.4 Advisory members will receive $50.00 each. 4-6 hours of time required. Elementary teachers to receive $25.00 each. 2-3 hours of time required.

2.0 Needs from elementary schools located in high poverty and minority areas.

2.1 Select 20 elementary teachers to participate in control groups. Preferably two or three elementary schools. Ten fourth, fifth, and sixth grade teachers from each school. The selection must be done on a random basis.

2.2 Select five advisory committee members to work with the experimental groups.

2.3 Select 20 elementary teachers to participate in experimental groups. Preferably two or three elementary schools. Ten fourth, fifth and sixth grade teachers from one school and ten from another.

2.4 Advisory memebers will receive $50.00 each. 4-6 hours of time required. Elementary teachers receive $25.00 each. 2-3 hours of time required.

*See attached matrix for research design.

APPENDIX L

ADVISORY COMMITTEE MEMBERS

BUSINESS REPRESENTATIVES - SEATTLE

Jan. 29 & 30

Mr. Jim Burns
420 NE Ravenna Blvd.
Seattle, Washington 98115
LA 3-3535

Mr. Richard Gebow
Assistant Management Rep.
Bethlehem Steel Co.
4045 Delridge Way NW
Seattle, WA 98106
WE 5-1100

Mr. Stan McNaughton
President
PEMCO Insurance Companies
325 Eastlake Avenue East
Seattle, WA 98111
682-9700

Mr. Alan Osberg, President
Osberg Construction Co.
1132 North 128th Street
Seattle, WA 98133
EM 4-4293

Mr. Bob Swenson
Assistant Manager
National Bank of Commerce
PO Box 1050
Seattle, Washington 98111
587-2500

Jan. 31 & Feb 1

Mr. Richard Christilaw, President
Administrative Management Society
E. J. Bartells
700 Powell Ave SW
Renton, Washington 98055
BA 8-4111

Miss Alice Dickie
Administrative Services Supervisor
Research Department
Wayerhaeuser Company
3400 13th Ave. SW
Seattle, WA 98136
MA 3-3913

Mr. Robert Howsey
Controller, Asst. Sect. & Treas.
PEMCO Insurance Companies
325 Eastlake Avenue East
Seattle, WA 98111
682-9700

Mrs. Leda Lundstrom
Corporate Secretary
Financial Systems
321 Minor Ave. North
Seattle, WA 98109
623-4940

Mr. Lynn Senour
Naval Architect
3201 Fairview Avenue East
Seattle, WA 98102

PORTLAND ADVISORY COMMITTEES

Mrs. Betty Schedeen
2324 S. E. 122 nd. Street
Portland, Oregon

Mrs. Jo Ann Washburn
4540 S. W. Cameron Road
Portland, Oregon

Mr. Dale Truax
1930 N. W. Irving
Portland, Oregon

Mr. Ed. Poyfair
1139 S. E. Third Street
Portland, Oregon

Mr. Y. C. Bressie, Jr.
902 S. W. Third Street
Portland, Oregon

Mr. Ronald Anderson
1008 N. E. Multnomah Street
Sheraton Motor Inn
Portland, Oregon

Mr. Bill Heiter
5411 N. Basin Street
Portland, Oregon

Benita Johnson
819 S. W. Oak Street
Portland, Oregon

Mr. Dale Meyers
9333 S. W. Vermont Street
Portland, Oregon

Mr. Bill True
12000 S. W. 49th Ave.
Portland, Oregon

APPENDIX M

LETTER TO PARTICIPANTS

OREGON STATE UNIVERSITY
CAREER EDUCATION PERSONNEL DEVELOPMENT CENTER
220 S. E. 102nd
P. O. Box 16657
Portland, Oregon 97216
Ph 255-1841, Ext. 191

November 16, 1972

MEMORANDUM

TO: Elementary Teachers Participating in Career Awareness Research Project

FROM: Bill Syhlman, Project Director

The purpose of this research is to identify the professional improvement needs of elementary teachers. Teachers will meet in small groups of ten each to discuss approximately 70 items relating to elementary teacher education needs.

Time-wise, it will take about 2 to 3 hours to complete the session. For contributing your professional opinions and judgments to the research, you will be reimbursed $25.00

Washington and Oregon, along with the Portland and Seattle Public Schools are supporting the efforts of the project. The U.S.O.E. is also supportive of the research you will provide.

The time and place for the meeting will be announced in the near future.

Please let your building principal know if you plan to participate. We sincerely hope that you will work with us.

Many thanks.

BDS:er

P.S. It is absolutely essential that the sampling groups are held at ten each. If you accept a spot and cannot make it, would you please seek a replacement for your spot.

BDS

308

OSU

OREGON STATE UNIVERSITY
SCHOOL OF EDUCATION

CORVALLIS, OREGON 97331

Since you have been randomly selected to participate in the study, it is of great importance that you give full consideration in participating in the data collection sessions. These sessions will be approximately 2-3 hours in length. You will be in one session, and for participating you will receive $25.00 for your professional contribution.

The time and place for conducting the sessions will be announced in the near future.

Please return the enclosed form to Dr. Ed K. Erickson, Assistant Superintendent for Occupational Education. Thank you for your interest and cooperation.

Yours truly,

Bill D. Syhlman
Project Director
Oregon State University

BDS:ph
Enc.

APPENDIX N

LETTER TO ADVISORY COMMITTEES

OREGON STATE UNIVERSITY
CAREER EDUCATION PERSONNEL DEVELOPMENT CENTER
220 S. E. 102nd
P. O. Box 16657
Portland, Oregon 97216
Ph 255-1841, Ext. 191

November 29, 1972

MEMORANDUM

TO:	Bette Schedeen	Marv Rasmussen
	JoAnn Washburn	Leonard Carpenter
	Dale Truax	LeRoy Wallis
	Ed Poyfair	Warren Rathbun
	Y. C. Bressie, Jr.	Jim O'Gara

FROM: Bill D. Syhlman, Project Director

SUBJECT: Data Collection of Experimental Groups in Career Awareness

The advisory committee members listed above will be working with two groups of elementary teachers. The enclosed letter provides the date, time and place for these two meetings.

Look forward to meeting with you, and many thanks for your assistance.

BDS:er
Encls.

APPENDIX O

LETTER ON MEETINGS

OREGON STATE UNIVERSITY
CAREER EDUCATION PERSONNEL DEVELOPMENT CENTER
220 S. E. 102nd
P. O. Box 16657
Portland, Oregon 97216
Ph 255-1841, Ext. 191

December 4, 1972

MEMORANDUM

TO: Elementary Teachers, Principals, Area Specialist, Marv Rasmussen

FROM: Bill D. Syhlman, Project Director

SUBJECT: Dates and Meeting Places for Data Collection in Career Awareness

The following meeting schedule has been developed for final data collection of the Portland-based research in career awareness.

Group III
Date: December 20, 1972
Time: 3:30 p.m.
Place: Ainsworth Elementary
2425 SW. Vista Avenue
Room 26

V. Treadgold	Ainsworth
R. Striver	Ainsworth
H. Williams	Ainsworth
S. Morris	Ainsworth
J. Browne	Ainsworth
L. Kimzey	Ainsworth
R. Parker	Ainsworth
A. Rife	Robert Gray
D. Hellberg	Robert Gray
A. Raymond	Robert Gray

Group IV
Date: January 3, 1973
Time: 3:30 p.m.
Place: Scott Elementary
6700 Ne. Prescott St.
Home Economics Room

C. Boer	Alameda
E. Knoph	Beaumont
L. Turner	Duniway
Z. Cold	Scott
G. Demmy	Scott
E. Dikeman	Scott
K. Dixon	Scott
P. Heisler	Scott
K. Hendrickson	Scott
P. Howard	Scott

If for some reason you cannot make this meeting date, please try to get someone to replace you or notify me at the above number. Thank you for your assistance and I look forward to our meeting.

APPENDIX P

ANALYSIS OF PRIORITY RANKINGS

ANALYSIS OF PRIORITY RATINGS FOR IN-SERVICE NEEDS IN FOURTH, FIFTH AND SIXTH GRADES FOR PORTLAND AND SEATTLE PUBLIC SCHOOLS*

Item No.	Priority Rankings										Priority Value
	1	2	3	4	5	6	7	8	9	10	
1.	7	4	3	2	0	5	1	1	1	1	179
2.	3	1	1	0	2	0	3	1	0	1	75
3.	12	12	9	5	2	2	2	3	2	3	381
4.	4	0	0	2	1	3	3	4	0	0	95
5.	4	5	2	1	2	2	1	2	3	3	149
6.	2	6	6	6	4	5	4	3	2	2	244
7.	6	8	5	4	3	1	2	0	2	0	235
8.	4	1	3	1	7	1	3	1	4	5	155
9.	0	4	4	2	1	3	1	3	1	4	122
10.	1	6	4	8	0	2	8	2	0	1	201
11.	0	0	3	2	2	2	0	1	0	0	63
12.	7	3	6	6	2	2	5	7	5	4	264
13.	1	1	1	5	4	2	2	2	1	0	112
14.	1	7	2	3	8	1	1	4	1	2	183
15.	3	0	5	3	7	4	0	1	3	1	163
16.	1	0	1	0	3	0	0	3	1	0	47
17.	1	0	1	2	0	1	0	1	2	1	45
18.	2	1	1	2	1	1	0	2	2	3	75
19.	0	3	1	3	6	4	1	2	3	0	128
20.	0	4	2	0	0	1	1	2	2	1	72
21.	1	1	1	3	0	2	1	0	3	3	71
22.	2	6	4	1	0	2	5	1	1	1	149
23.	4	4	15	4	4	8	3	7	5	3	334
24.	2	1	2	2	3	2	1	0	3	4	101
25.	1	3	1	4	4	3	4	2	2	0	138
26.	1	0	2	2	1	1	1	1	5	3	71
27.	0	1	0	1	1	0	3	1	0	0	37
28.	0	1	1	0	0	2	0	0	4	0	35
29.	2	0	1	0	1	1	4	1	1	6	66
30.	0	2	1	2	2	0	1	1	1	3	64
31.	0	1	0	0	0	0	1	2	0	4	23
32.	0	3	2	2	0	7	4	4	2	3	127
33.	1	0	0	3	1	0	1	1	1	1	47
34.	1	0	1	2	5	1	3	3	2	2	94
35.	0	1	0	1	1	0	1	3	1	2	39
36.	2	3	3	1	1	0	3	6	5	1	125
37.	0	0	0	2	1	1	1	3	4	1	47

38.	0	0	1	1	2	4	2	1	3	2	66
39.	4	3	7	6	7	3	0	2	7	4	246
40.	0	0	1	0	3	3	0	1	1	2	48
41.	0	0	2	4	2	0	4	2	0	1	79
42.	3	3	4	2	1	5	1	3	3	2	155
43.	4	2	2	6	6	5	3	7	5	4	224
44.	0	1	0	0	0	1	2	0	3	2	30
45.	0	0	2	1	1	2	0	1	0	1	43
46.	1	0	0	1	1	1	3	0	1	2	44
47.	2	2	1	1	0	5	3	1	0	4	97
48.	0	0	1	0	0	0	2	0	0	0	16
49.	0	0	0	1	0	0	1	2	1	1	20
50.	0	0	1	1	8	0	1	2	1	2	77
51.	1	0	0	3	1	2	2	2	0	0	61
52.	0	1	2	2	6	3	4	1	4	5	122
53.	0	1	2	0	0	2	2	0	2	0	47
54.	5	7	5	2	6	3	6	4	4	4	266
55.	0	2	0	4	1	2	1	0	2	0	70
56.	0	0	0	0	1	1	0	1	1	1	17
57.	2	0	0	3	3	1	2	4	2	1	89
58.	0	0	0	0	0	1	2	1	1	0	18
59.	4	5	3	6	1	3	5	0	5	3	205
60.	0	1	1	1	3	3	2	1	2	1	73
61.	3	5	3	0	3	0	1	2	1	1	130
62.	0	0	0	3	1	2	1	3	1	2	54
63.	3	3	2	3	1	4	1	1	2	2	133
64.	1	1	4	2	1	1	4	2	2	1	103
65.	1	1	0	1	1	4	1	1	2	1	64
66.	1	1	2	0	0	0	1	3	2	1	53
67.	0	1	1	2	1	0	0	2	1	1	46
68.	1	1	0	1	2	2	1	4	0	2	66
69.	0	0	0	1	2	0	1	3	2	0	36
70.	0	0	0	0	0	0	1	1	1	4	13
71.	0	2	3	1	1	2	1	0	2	5	78
72.	2	0	1	0	0	0	0	1	1	3	36
73.	0	0	1	0	0	2	1	0	0	0	22
74.	0	0	1	0	0	0	0	1	3	0	17
75.	3	5	3	5	2	4	10	1	2	1	214
76.	6	1	2	0	4	3	2	3	1	4	147
77.	7	9	1	4	2	0	3	3	3	5	231
78.	2	1	1	0	1	2	4	2	1	1	78
79.	1	0	1	0	0	0	2	3	1	2	39
80.	17	2	4	4	1	7	1	6	5	3	234
81.	0	0	0	0	0	0	0	0	2	1	5
82.	0	0	0	1	2	2	1	0	1	0	35
83.	7	5	1	0	1	1	1	1	1	4	147
84.	3	1	0	0	1	2	0	0	0	5	60

*Formula for priority value: $PV = 10(N) + 9(N) \ldots + 1(N)$

Example: Item No. 1, $PV = 10(7) + 9(4) + 9(3) \ldots + 1(1)$

$= 179$

APPENDIX Q

ANALYSIS OF COMPUTED "F" SCORES

ANALYSIS OF COMPUTED "F" VALUES FOR 84 NEED STATEMENTS

Item No.	Primary Main Effects			Two Factor Interactions			Three Factor Interactions
	P/S	C/E	A/P	P/S X C/E	P/S X A/P	C/E X A/P	P/S X C/E X A/P
1.	.06	.33	.81	8.24	1.51	2.43	6.24
2.	17.06	2.63	1.39	1.39	1.07	4.27	.20
3.	2.04	2.04	.35	.35	.01	.57	.06
4.	1.71	.67	2.67	10.66	9.62	.43	.24
5.	.06	1.61	1.61	4.46	5.21	.86	3.78
6.	.02	1.50	.00	2.34	2.34	2.84	1.15
7.	3.97	.64	.64	10.17	.07	.87	.44
8.	.26	.05	.26	3.37	.91	1.95	.91
9.	1.21	.62	.89	3.57	4.19	.22	.89
10.	3.66	1.45	1.45	6.15	.25	.05	.85
11.	.26	1.29	.58	2.70	1.60	.14	.78
12.	.97	9.59	1.70	.66	.96	4.49	1.30
13.	.15	2.79	1.06	6.60	1.34	4.77	.59
14.	.62	.10	5.54	.62	14.18	1.21	.10
15.	.82	.37	5.85	.21	1.85	12.10	.37
16.	4.72	3.47	.10	.60	2.91	1.18	1.54
17.	1.52	1.52	.11	.11	4.72	2.29	.04
18.	.01	6.41	.63	.13	.63	.01	6.57
19.	.09	7.42	.37	.82	.00	2.29	1.46
20.	1.83	.13	.13	.62	4.27	.05	.86
21.	1.15	.01	.51	1.15	.23	.06	.06
22.	.05	3.84	.90	.26	2.32	.43	1.52
23.	.01	4.86	6.82	1.14	4.86	.05	2.68
24.	.01	.06	.52	1.46	1.46	.16	.78
25.	4.86	1.97	5.47	3.25	3.25	.36	.22

Item No.	Primary Main Effects			Two Factor Interactions			Three Factor Interactions
	P/S	C/E	A/P	P/S X C/E	P/S X A/P	C/E X A/P	P/S X C/E X A/P
26.	.16	.16	7.73	1.42	.01	.16	.76
27.	.19	5.99	.75	.52	.33	6.72	.00
28.	.23	3.98	5.15	.04	2.50	1.06	.01
29.	3.00	2.09	.52	2.52	3.00	5.34	1.69
30.	.10	.00	.40	1.24	1.24	.63	.00
31.	.97	.05	2.07	1.66	5.51	1.29	1.29
32.	.51	4.61	.77	.31	.77	6.07	5.31
33.	1.76	17.07	.09	.54	.20	.35	.02
34.	3.09	.57	.01	.34	1.58	4.38	.18
35.	.06	1.14	.06	.01	.06	.35	1.14
36.	.01	4.31	4.31	2.26	1.15	.42	2.71
37.	.14	.01	.14	2.02	.01	1.62	4.08
38.	.63	.00	.10	.00	3.65	.03	.03
39.	.03	.03	.63	.63	7.29	2.04	.63
40.	6.35	5.67	3.84	6.35	7.08	1.26	.18
41.	1.93	6.89	.60	3.43	.38	.10	.60
42.	1.72	1.07	.23	2.52	.01	.01	.23
43.	.77	.01	1.41	7.65	1.41	.01	.16
44.	.48	.72	1.34	2.63	.29	.72	2.63
45.	.01	.11	.04	.21	10.99	.01	.21
46.	1.01	.29	2.16	.01	3.74	.49	5.04
47.	1.22	.18	5.53	9.87	1.22	3.81	8.24
48.	1.86	.09	5.15	.21	13.14	1.86	.09
49.	1.27	2.03	.14	.01	.56	.46	.01
50.	13.68	.10	.38	1.52	2.38	.86	.00
51.	.22	.02	9.79	.10	1.20	.22	.88
52.	2.73	.62	.62	3.76	2.73	5.61	.42
53.	3.80	1.69	.03	1.69	5.94	.03	.66
54.	.87	3.71	2.41	.87	.19	.10	2.41
55.	1.03	.01	1.03	1.03	.06	1.03	2.19
56.	.21	4.50	2.78	1.13	.00	3.88	.09

Item No.	Primary Main Effects			Two Factor Interactions			Three Factor Interactions
	P/S	C/E	A/P	P/S X C/E	P/S X A/P	C/E X A/P	P/S X C/E X A/P
57.	3.40	1.63	1.29	.99	.08	.08	1.29
58.	27.76	.00	3.24	10.32	.41	5.35	2.79
59.	.10	.00	2.50	4.35	8.09	.48	.04
60.	.07	.03	.91	.91	.30	1.18	5.34
61.	6.08	.27	.07	9.70	.61	.83	.15
62.	.58	5.19	7.25	5.84	.81	1.07	6.53
63.	5.46	1.88	1.10	4.05	.01	2.86	2.34
64.	.34	8.61	1.06	1.78	4.84	.54	.02
65.	6.30	2.16	.91	4.68	.19	.37	1.69
66.	1.36	5.81	.30	.49	3.79	.05	.49
67.	2.28	6.32	.13	7.85	.87	.62	.13
68.	1.22	.93	2.31	.93	.02	12.88	1.91
69.	.16	10.05	.44	1.12	.44	.07	2.51
70.	2.39	.71	10.46	3.34	1.98	.18	1.27
71.	.98	.15	6.33	2.10	9.77	.01	4.89
72.	7.93	12.52	3.26	.01	5.01	6.39	.63
73.	3.18	.30	.17	6.10	.47	6.10	1.21
74.	.23	.92	.92	4.30	4.30	.41	.03
75.	.01	4.69	7.96	11.20	.21	1.90	.52
76.	3.28	.43	5.04	7.18	.64	1.18	3.28
77.	4.02	8.20	.08	.02	3.46	1.66	6.64
78.	.05	2.81	.13	.43	12.73	.13	.01
79.	.50	2.87	1.99	1.99	5.10	.50	1.61
80.	1.21	1.55	2.84	9.92	1.93	3.91	.65
81.	.59	.01	.89	.36	.36	.07	1.65
82.	.33	4.61	.08	3.46	.33	.02	1.00
83.	3.76	.15	.30	1.35	1.02	8.23	1.74
84.	.09	3.3.	.83	1.47	3.31	.82	.00

APPENDIX R

STATISTICAL METHODS

2^3 Fixed Factorial Design			3-way Arrangement	ANOVA
Source of Variation	Sum of Squares	d.f.	Mean Square	Variance Ratio
Replications	SS (Rp)	d'f 1=rp-1	$MS\ (RP) = \frac{SS\ (RP)}{rp-1}$	$F_{RP} = \frac{MS\ (RP)}{MSE}$
Main Effects				
A = City	SSA	1	MSA = SSA	$F_A = \frac{MSA}{MSE}$
B = Demo.	SSB	1	MSB = SSB	$F_B = \frac{MSB}{MSE}$
C = Treat.	SSC	1	MSC = SSC	$F_C = \frac{MSC}{MSE}$
Two Factor Interactions				
AB	SS(AB)	1	MS(AB) = SS(AB)	$F_{AB} = \frac{MS(AB)}{MSE}$
AC	SS(AC)	1	MS(AC) = SS(AC)	$F_{AC} = \frac{MS(AC)}{MSE}$
BC	SS(BC)	1	MS(BC) = SS(BC)	$F_{BC} = \frac{MS(BC)}{MSE}$
Three Factor Interactions				
ABC	SS(ABC)	1	MS(ABC) = SS(ABC)	$F_{ABC} = \frac{MS(ABC)}{MSE}$
Error	SSE	d f_2 $2^{3(rp-1)-1}$	$MSE = \frac{SSE}{2^{3(rp-1)-1}}$	
Total	SST	rp 2^3-1		

FORMULAS

Correction Factor

$$C = \frac{T_I^2}{rp \cdot 2^3}$$

Main Effect Sum of Squares

$$SSA = \frac{T_a^2}{rp \cdot 2^3}$$

$$SSB = \frac{T_b^2}{rp \cdot 2^3}$$

$$SSC = \frac{T_c^2}{rp \cdot 2^3}$$

Interaction Sum of Squares

$$SS(AB) = \frac{T_{ab}^2}{rp \cdot 2^3}$$

$$SS(AC) = \frac{T_{ac}^2}{rp \cdot 2^3}$$

$$SS(BC) = \frac{T_{bc}^2}{rp \cdot 2^3}$$

$$SS(ABC) = \frac{T_{abc}^2}{rp \cdot 2^3}$$

Replication Sum of Squares

$$SS(Rp) = \frac{\sum_{=1}^{rp} T^2}{2^3} - C$$

Total Sum of Squares

$$SST = \sum_{i=0}^{1} \sum_{j=0}^{1} \sum_{k=0}^{1} \sum_{l=0}^{rp} X^2_{ijkl} - C$$

Error Sum of Squares

$$SSE = SST - SSA - SSB - SSC - SS(AB) - SS(AC) - SS(ABC) - SS(Rp)$$

APPENDIX S

PARTICIPANT DATA SUMMARY

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

BUDGET BUREAU NO. 51-R0752
APPROVAL EXPIRES: 10/31/71

PARTICIPANT DATA SUMMARY
(Parts C, D, and F, Education Professions Development Act Title V, P.L. 89-329, as amended)

1. OE PROJECT NUMBER

2 NAME OF SPONSORING INSTITUTION OR AGENCY: Oregon Board of Education and Portland Public Schools

3. STATE: Oregon

4. a. NUMBER OF PARTICIPANTS TO BE TRAINED IN THE PROJECT

b. NUMBER OF PARTICIPANTS COVERED BY THIS SUMMARY REPORT: 90

DATA ON PARTICIPANTS

5. SEX

a. Male	41
b. Female	49

6. AGE

a. under 25		d. 35-39	14	g. 50-54	13		
b. 25-29	10	e. 40-44	13	h. 55-59	10		
c. 30-34	12	f. 45-49	11	i. 60 and over	10		

7. PARTICIPANTS BY WHETHER OR NOT THEY ARE VIETNAM ERA VETERANS

a. Vietnam era veterans	5
b. Not Vietnam era veterans	85

8. RACIAL OR ETHNIC BACKGROUND

a. Negro or black	2	d. American Indian	1
b. Puerto Rican		e. Oriental	4
c. Mexican-American		f. Other than the above	83

9. PARTICIPANTS BY WHETHER THEIR INCOMES ARE, OR WERE BEFORE THEY ENROLLED IN THIS PROJECT, BELOW THE POVERTY LINE

a. Below poverty line	
b. Not below poverty line	90

10. GEOGRAPHIC DISTRIBUTION OF PARTICIPANTS *(by State of employment prior to this project)*

a. Ala.		k. Ga.		u. Md.		ae. N. J.		ao. S. C.		ay. Wyo.	
b. Alaska		l. Hawaii		v. Mass.		af. N. M.		ap. S. D.		az. Canal Zone	
c. Ariz.		m. Idaho		w. Mich.		ag. N. Y.		aq. Tenn.		ba. Guam	
d. Ark.		n. Illinois		x. Minn.		ah. N. C.		ar. Texas		bb. Puerto Rico	
e. Cal.		o. Indiana		y. Miss.		ai. N. D.		as. Utah		bc. Virgin Is.	
f. Colo.		p. Iowa		z. Mo.		aj. Ohio		at. Vt.		bd. Pacific Trust Territories	
g. Conn.		q. Kansas		aa. Mont		ak. Okla.		au. Va.			
h. Del.		r. Ky.		ab. Nebr.		al. Oreg.	90	av. Wash.		be. Overseas Dep. Schools	
i. D. C.		s. La.		ac. Nevada		am. Pa.		aw. W. Va.			
j. Fla.		t. Maine		ad. N. H.		an. R. I.		ax. Wisc.		bf. Foreign	

11. HIGHEST DEGREE EARNED

a. NONE	b. H. S. DIPLOMA	c. BACHELOR'S	d. MASTER'S	e. ED. D.	f. PH. D.
	4	55	28	3	

12. OCCUPATIONAL BACKGROUND

a. Currently employed *(or within the past 5 years employed)* in the field of education	80	d. Never previously employed in the field of education by whether they were	
b. Previously employed in the field of education, but not within the past 5 years		1. Employed in other professions requiring an academic degree	3
c. Never previously employed in the field of education	5	2. Holding an academic degree but not working	
		3. Not holding an academic degree	2

13. TOTAL YEARS OF TEACHING OR OTHER EMPLOYMENT IN THE FIELD OF EDUCATION

a. NONE	b. 1-4 YEARS	c. 5-9 YEARS	d. 10-14 YEARS	e. 15-19 YEARS	f. 20 OR MORE
5	9	10	19	17	30

14. PRIMARY POSITION OR EMPLOYMENT STATUS AT PRESENT, OR IMMEDIATELY PRIOR TO PROJECT

a. IN A PRESCHOOL, ELEMENTARY OR SECONDARY SCHOOL OR SCHOOLS, OR LOCAL EDUCATION AGENCY				b. OTHERWISE EMPLOYED	
1. Teacher	80	5. Instructional media *(incl. librarians)*		1. Teacher trainer *(in institution of higher education)*	2
2. Administrator	3	6. Education aide or paraprofessional		2. In State educ. agency	2
3. Supervisor		7. School volunteer	1	3. Non-education position	6
4. Pupil personnel specialist		8. Other education position		4. Student	

OE FORM 7214, 6/70 — REPLACES OE FORM 7214, 6/69, WHICH IS OBSOLETE.

DATA ON SCHOOLS OF PARTICIPANTS

(NOTE: Distribute into each of the following items (15, 16, 17, 18, 19a, 19b, 19c, 19d, and 19e) only the number of participants who have been classified in item 14a. by the category in each item which best describes the nature of their schools. Exclude participants classified in item 14b.)

15. SCHOOL OR SYSTEM, BY CONTROL		16. GRADE LEVELS WITH WHICH THE PARTICIPANTS' ASSIGNMENTS USUALLY RELATE					
		a. Preschool		d. Jr. High (7-9)		g. Elem. & Sec.	
a. Public	80	b. K - Gr 3		e. Sr. High (10-12)		h. Post-Sec. Vocational	
b. Nonpublic		c. Elem (K-6)	80	f. Secondary (7-12)		i. Adult Education	

17. AREA OF SERVICE OF SCHOOL OR SYSTEM WHERE EMPLOYED *(predominant characteristic)*

a. Rural or small town - general population		d. Urban - poverty area	40
b. Rural or small town - poverty area		e. Suburban	
c. Urban - general population	40		

18. STUDENT BODY OF SCHOOL *(or schools)* IN TERMS OF THE PERCENT WHO COME FROM FAMILIES AT OR BELOW THE POVERTY LINE

a. 0%		d. 20-29%	20	g. 50-59%	5	j. 80-89%	1
b. 1-9%	25	e. 30-39%	10	h. 60-69%	1	k. 90-100%	
c. 10-19%	10	f. 40-49%	4	i. 70-79%	3		

19. STUDENT BODY OF SCHOOL *(or schools)* IN TERMS OF THE PERCENT WHO COME FROM SPECIFIED MINORITY RACIAL OR ETHNIC BACKGROUNDS

A. NEGRO OR BLACK		B. PUERTO RICAN		C. MEXICAN-AMERICAN		D. AMERICAN INDIAN		E. ORIENTAL	
a. 0%	14	a. 0%	63	a. 0%	40	a. 0%	27	a. 0%	26
b. 1 - 9%	44	b. 1-9%	16	b. 1-9%	39	b. 1-9%	47	b. 1-9%	47
c. 10-19%	14	c. 10-19%	1	c. 10-19%	1	c. 10-19%	6	c. 10-19%	7
d. 20-29%	4	d. 20-29%		d. 20-29%		d. 20-29%		d. 20-29%	
e. 30-39%		e. 30-39%		e. 30-39%		e. 30-39%		e. 30-39%	
f. 40-49%	1	f. 40-49%		f. 40-49%		f. 40-49%		f. 40-49%	
g. 50-59%		g. 50-59%		g. 50-59%		g. 50-59%		g. 50-59%	
h. 60-69%	2	h. 60-69%		h. 60-69%		h. 60-69%		h. 60-69%	
i. 70-79%		i. 70-79%		i. 70-79%		i. 70-79%		i. 70-79%	
j. 80-89%	1	j. 80-89%		j. 80-89%		j. 80-89%		j. 80-89%	
k. 90-100%		k. 90-100%		k. 90-100%		k. 90-100%		k. 90-100%	

AREA OF SPECIALIZATION *(if employed in an institution of higher education)*

20. PARTICIPANTS EMPLOYED IN INSTITUTIONS OF HIGHER EDUCATION - THOSE PARTICIPANTS DISTRIBUTED IN THE FIRST CATEGORY OF ITEM 14b, AS "TEACHER TRAINERS" - BY AREA OF SPECIALIZATION

a. ARTS OR SCIENCES	b. EDUCATION	c. OTHER

TYPE OF POSITION FOR WHICH PARTICIPANTS ARE PREPARING

21. ALL PARTICIPANTS BY WHETHER THIS PROJECT IS PREPARING THEM TO ENGAGE IN A DIFFERENT TYPE OF POSITION

a. Preparing for same type of position as at present *(as reported in item 14)*	
b. Preparing for a different type of position *(include teachers who are preparing to teach a different subject)*	

c. Participants in category b. above by type of position being prepared for

1. Teacher *(of a different subject)*		6. Educational aide or paraprofessional	
2. Administrator		7. School volunteer	
3. Supervisor		8. Other educational position *(in a school)*	
4. Pupil personnel specialist		9. Teacher trainer *(in an institution of higher education)*	
5. Instructional media specialist *(including librarian)*			

Career Awareness Portland and Seattle

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON D.C. 20202

BUDGET BUREAU NO. 51-R0752
APPROVAL EXPIRES: 10/31/71

PARTICIPANT DATA SUMMARY

(Parts C, D, and F, Education Professions Development Act
Title V, P.L. 89-329, as amended)

1. OE PROJECT NUMBER

2 NAME OF SPONSORING INSTITUTION OR AGENCY

C. C. O. E. and Seattle Public Schools

3. STATE

Washington

4. a. NUMBER OF PARTICIPANTS TO BE TRAINED IN THE PROJECT	b. NUMBER OF PARTICIPANTS COVERED BY THIS SUMMARY REPORT
	90

DATA ON PARTICIPANTS

5. SEX		6. AGE						7. PARTICIPANTS BY WHETHER OR NOT THEY ARE VIETNAM ERA VETERANS	
		a. under 25	6	d. 35-39	1	g. 50-54	9		
a. Male	42	b. 25-29	13	e. 40-44	17	h. 55-59	10	a. Vietnam era veterans	2
b. Female	48	c. 30-34	15	f. 45-49	15	i. 60 and over	4	b. Not Vietnam era veterans	48

8. RACIAL OR ETHNIC BACKGROUND				9. PARTICIPANTS BY WHETHER THEIR INCOMES ARE, OR WERE BEFORE THEY ENROLLED IN THIS PROJECT, BELOW THE POVERTY LINE	
a. Negro or black	3	d. American Indian			
b. Puerto Rican		e. Oriental	5	a. Below poverty line	
c. Mexican-American		f. Other than the above	82	b. Not below poverty line	90

10. GEOGRAPHIC DISTRIBUTION OF PARTICIPANTS *(by State of employment prior to this project)*

a. Ala.		k. Ga.		u. Md.		ae. N. J.		ao. S. C.		ay. Wyo.	
b. Alaska		l. Hawaii		v. Mass.		af. N. M.		ap. S. D.		az. Canal Zone	
c. Ariz.		m. Idaho		w. Mich.		ag. N. Y.		aq. Tenn.		ba. Guam	
d. Ark.		n. Illinois		x. Minn.		ah. N. C.		ar. Texas		bb. Puerto Rico	
e. Cal.		o. Indiana		y. Miss.		ai. N. D.		as. Utah		bc. Virgin Is.	
f. Colo.		p. Iowa		z. Mo.		aj. Ohio		at. Vt.		bd. Pacific Trust Territories	
g. Conn.		q. Kansas		aa. Mont		ak. Okla.		au. Va.			
h. Del.		r. Ky.		ab. Nebr.		al. Oreg.		av. Wash.	90	be. Overseas Dep. Schools	
i. D. C.		s. La.		ac. Nevada		am. Pa.		aw. W. Va.			
j. Fla.		t. Maine		ad. N. H.		an. R. I.		ax. Wisc.		bf. Foreign	

11. HIGHEST DEGREE EARNED

a. NONE	b. H. S. DIPLOMA	c. BACHELOR'S	d. MASTER'S	e. ED. D.	f. PH. D.
	3	63	23	2	

12. OCCUPATIONAL BACKGROUND

a. Currently employed *(or within the past 5 years employed)* in the field of education	79	d. Never previously employed in the field of education by whether they were	
b. Previously employed in the field of education, but not within the past 5 years	1	1. Employed in other professions requiring an academic degree	1
c. Never previously employed in the field of education	9	2. Holding an academic degree but not working	
		3. Not holding an academic degree	1

13. TOTAL YEARS OF TEACHING OR OTHER EMPLOYMENT IN THE FIELD OF EDUCATION

a. NONE	b. 1-4 YEARS	c. 5-9 YEARS	d. 10-14 YEARS	e. 15-19 YEARS	f. 20 OR MORE
8	14	21	17	15	15

14. PRIMARY POSITION OR EMPLOYMENT STATUS AT PRESENT, OR IMMEDIATELY PRIOR TO PROJECT

a. IN A PRESCHOOL, ELEMENTARY OR SECONDARY SCHOOL OR SCHOOLS, OR LOCAL EDUCATION AGENCY				b. OTHERWISE EMPLOYED	
1. Teacher	80	5. Instructional media *(incl. librarians)*		1. Teacher trainer *(in institution of higher education)*	
2. Administrator		6. Education aide or paraprofessional		2. In State educ. agency	
3. Supervisor		7. School volunteer		3. Non-education position	10
4. Pupil personnel specialist		8. Other education position		4. Student	

DATA ON SCHOOLS OF PARTICIPANTS

(NOTE: Distribute into each of the following items (15, 16, 17, 18, 19a, 19b, 19c, 19d, and 19e) only the number of participants who have been classified in item 14a, by the category in each item which best describes the nature of their schools. Exclude participants classified in item 14b.)

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a. Public	80	b. K - Gr 3		e. Sr. High (10-12)		h. Post-Sec. Vocational	
b. Nonpublic		c. Elem (K-6)	80	f. Secondary (7-12)		i. Adult Education	

17. AREA OF SERVICE OF SCHOOL OR SYSTEM WHERE EMPLOYED *(predominant characteristic)*

a. Rural or small town - general population		d. Urban - poverty area	40
b. Rural or small town - poverty area		e. Suburban	
c. Urban - general population	40		

18. STUDENT BODY OF SCHOOL *(or schools)* IN TERMS OF THE PERCENT WHO COME FROM FAMILIES AT OR BELOW THE POVERTY LINE

a. 0%	1	d. 20-29%	12	g. 50-59%	5	j. 80-89%	5
b. 1-9%	17	e. 30-39%	16	h. 60-69%	5	k. 90-100%	
c. 10-19%	8	f. 40-49%	6	i. 70-79%	3		

19. STUDENT BODY OF SCHOOL *(or schools)* IN TERMS OF THE PERCENT WHO COME FROM SPECIFIED MINORITY RACIAL OR ETHNIC BACKGROUNDS

A. NEGRO OR BLACK		B. PUERTO RICAN		C. MEXICAN-AMERICAN		D. AMERICAN INDIAN		E. ORIENTAL	
a. 0%	6	a. 0%	36	a. 0%	17	a. 0%	14	a. 0%	8
b. 1 - 9%	35	b. 1-9%	13	b. 1-9%	37	b. 1-9%	40	b. 1-9%	41
c. 10-19%	9	c. 10-19%	1	c. 10-19%	4	c. 10-19%	8	c. 10-19%	8
d. 20-29%	11	d. 20-29%		d. 20-29%		d. 20-29%	1	d. 20-29%	6
e. 30-39%	3	e. 30-39%		e. 30-39%		e. 30-39%	1	e. 30-39%	
f. 40-49%	4	f. 40-49%		f. 40-49%		f. 40-49%		f. 40-49%	3
g. 50-59%	4	g. 50-59%		g. 50-59%		g. 50-59%		g. 50-59%	
h. 60-69%	2	h. 60-69%		h. 60-69%		h. 60-69%		h. 60-69%	
i. 70-79%	2	i. 70-79%		i. 70-79%		i. 70-79%		i. 70-79%	
j. 80-89%	2	j. 80-89%		j. 80-89%		j. 80-89%		j. 80-89%	
k. 90-100%	1	k. 90-100%		k. 90-100%		k. 90-100%		k. 90-100%	

AREA OF SPECIALIZATION *(If employed in an institution of higher education)*

20. PARTICIPANTS EMPLOYED IN INSTITUTIONS OF HIGHER EDUCATION - THOSE PARTICIPANTS DISTRIBUTED IN THE FIRST CATEGORY OF ITEM 14b, AS "TEACHER TRAINERS" - BY AREA OF SPECIALIZATION

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1. Teacher *(of a different subject)*		6. Educational aide or paraprofessional	
2. Administrator		7. School volunteer	
3. Supervisor		8. Other educational position *(in a school)*	
4. Pupil personnel specialist		9. Teacher trainer *(in an institution of higher education)*	
5. Instructional media specialist *(including librarian)*			

APPENDIX T

COMPUTER PRINT-OUT

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**********************************************************************
*ANOVA3 - THREE FACTOR ANALYSIS OF VARIANCE.              VER. 3.6
OREGON STATE UNIVERSITY COMPUTER CENTER.          DATE - 02/15/73
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PROBLEM CODE: 84

SOURCE	DF	SS	MS	F
P/S	1	.1000	.1000	.092
C/E	1	3.6000	3.6000	3.312
A/P	1	.9000	.9000	.828
P/S X C/E	1	1.6000	1.6000	1.472
P/S X A/P	1	3.6000	3.6000	3.312
C/E X A/P	1	.9000	.9000	.828
P/S X C/E X A/P	1	.0000	.0000	.000
ERROR	152	165.2000	1.0868	
TOTAL	159	175.900000		

MEANS.

P/S

(2)	(1)
3.4500	3.5000

C/E

(1)	(2)
3.3250	3.6250

A/P

(1)	(2)
3.4000	3.5500

P/S X C/E

(2,1)	(2,2)
3.4000	3.5000
(1,1)	(1,2)
3.2500	3.7500

P/S X A/P

(2,1)	(2,2)
3.5250	3.3750
(1,1)	(1,2)
3.2750	3.7250

C/E X A/P

(1,1)	(1,2)
3.1750	3.4750
(2,1)	(2,2)
3.6250	3.6250

P/S X C/E X A/P

(2,1,1)	(2,1,2)
3.4000	3.4000
(2,2,1)	(2,2,2)
3.6500	3.3500
(1,1,1)	(1,1,2)
2.9500	3.5500