THE UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

THE STANDARDIZATION OF TEACHING COMBINATIONS AND TEACHER EDUCATION PROGRAMS FOR ART TEACHERS FOR THE SECONDARY SCHOOLS OF KANSAS

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

degree of

DOCTOR OF EDUCATION

BY

JAMES WARREN BRINKMAN

Norman, Oklahoma

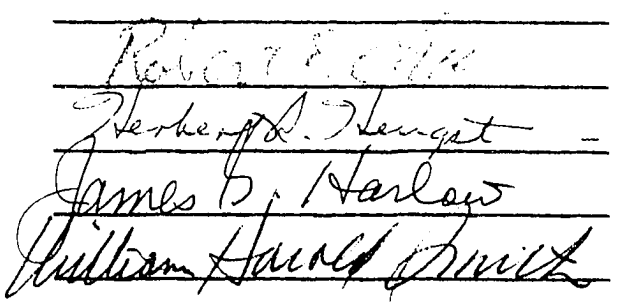
1967

THE STANDARDIZATION OF TEACHING COMBINATIONS AND

TEACHER EDUCATION PROGRAMS FOR ART TEACHERS

FOR THE SECONDARY SCHOOLS OF KANSAS

APPROVED BY



DISSERTATION COMMITTEE

ACKNOWLEDGEMENT

This study was undertaken in partial fulfillment of the requirements for the degree Doctor of Education but also in the sincere hope that a solution may be found to a long standing problem in Kansas art education. This work, though bearing the name of one author, is in reality the product of the time, effort, and patience of many people.

Sincere appreciation is extended to the graduate faculty of the University of Oklahoma but especially to the following individuals whose help was of particular significance: Dr. Robert E. Ohm, College of Education, who served as advisor and committee chairman and without whose assistance this work could not have been completed. Dr. James G. Harlow, Dean of the College of Education; Dr. Herbert Hengst, College of Education; Mr. Roger Corsaw and Mr. William H. Smith, School of Art, whose services as members of the committee is deeply appreciated.

Recognition is also due to the hundreds of secondary school principals in Kansas and to the many college students who gave of their time to complete the questionnaires which were an essential part of this work. Finally, a debt of gratitude to my wife and two sons whose patience, understanding, and encouragement were of immeasureable value.

James Warren Brinkman
Emporia, Kansas
February, 1967

TABLE OF CONTENTS

LIST OF TABLES

THE STANDARDIZATION OF TEACHING COMBINATIONS AND TEACHER EDUCATION PROGRAMS FOR ART TEACHERS FOR THE SECONDARY SCHOOLS OF KANSAS

CHAPTER I

THE PROBLEM

General Problem Area: The Lack of Art in the Curricula of Many Kansas Secondary Schools

An examination of the curricular offerings of Kansas secondary schools indicates that only a small percentage of these schools include art courses in their programs. An unpublished study of this situation for the 1961-62 school year found that of the 597 secondary schools operating in Kansas that year only 128 (21.4%) of them offered any art.[1] Gross figures of this kind do not, in themselves, present the complete picture. Examination of the data for the various sizes of schools indicates that of the eighteen schools enrolling 1000 or more students, all eighteen of them (100%) offered art. Fifty-seven out of seventy-two (79.2%) of the schools in the 301 to 1000 pupil size offered art while only fifty-three out of 507 (10.5%) of the schools enrolling 300 or fewer pupils offered art.[2]

---

[1]Ronald Hickman, "A Study of High School Art Offerings in the State of Kansas," Art Department, Kansas State Teachers College, Emporia, 1963. (in the files of the Department), p. 3.

[2]Ibid., p. 3.

A comparison of the art offered in Kansas with that of the nation as a whole indicates little appreciable difference in the situation. A similar study published in 1963 by the National Education Association Research Division provides data for schools in closely similar size groups. This study shows that 97% of the schools in the large group offered art, 70% of the medium-size schools offered art, and 29% of the small-size schools included art in the curriculum.[1]

The reasons for the frequent lack of art in small secondary schools are many and include the difficulties encountered in acquiring a teacher qualified to conduct an art class or program. An NEA study entitled Music and Art in the Public Schools, published in August, 1963, found that the lack of qualified teachers was a factor in limiting the art program in 22.7% of secondary schools of all sizes.[2] The same study shows that 35.3% of the schools of 300 or fewer pupils failed to offer some art class or activity in 1961-62 because of the lack of a qualified teacher.

The data presented above provides evidence that the small secondary schools are more inclined than the large schools to exclude art from the curriculum. The evidence also indicates that the difficulty in finding a teacher of art is more of a cause for excluding art in the small school than it is inclined to be in the large school.

One of the factors which contributes to the difficulty in obtaining art teachers is the general problem of supply and demand which prevails

---

[1]National Education Association Research Division, "Art Instruction in Public Schools," NEA Research Bulletin, XLI (October, 1963), 90-93.

[2]National Education Association Research Division, Music and Art in the Public Schools, Research Monograph 1963-M3, (Washington: National Education Association, 1963), p. 61.

in nearly all fields of education. The gross number of teachers, even the gross number of art teachers, as compared to the total demand does not represent the full extent of the problem. Another study by the Research Division of the NEA entitled Teacher Supply and Demand in Public Schools, 1965 states that gross numbers of teachers is not the most critical factor in the supply and demand problem.[1] The author concludes that, "Transcending all else is the need for a better distribution (among high school teaching fields) of the annual available new supply."[2] If a better distribution among teaching fields is needed, the same improved distribution is also needed among those fields used in combination. A teacher of mathematics may not be qualified to fill an art position and, in like manner, a teacher of art and mathematics is not likely to be equipped to serve as a teacher of art and speech.

The matching of teacher qualifications to the demands of a particular position is a difficult task. This task becomes more difficult when the job requires competence in more than one subject thus requiring a teacher with sufficient background in the particular combination of subjects needed. Such a situation, the combination teaching assignment and the need for a teacher prepared in that combination, is often found in the medium-size high school and most frequently found in the small high school. The need for teachers who are qualified to teach two and sometimes more subjects is not difficult to verify. The previously mentioned study of supply and demand states that many schools in rural areas must have

---

[1]National Education Association Research Division, Teacher Supply and Demand in Public Schools, 1965 (Washington: National Education Association, 1965), p. 30.

[2]Ibid.

teachers qualified to accept positions in two or even three fields. The same study indicates that preparation in a "minor" field is highly important, ". . . perhaps a vital necessity . . ." in obtaining a position.[1]

The need for art teachers who can also serve in another instructional capacity is also clearly supported by the literature in the art education field and by examination of existing practices. In discussing the problems of staffing the art program, Kenneth Perry, in An Experiment with a Diversified Art Program specifically lists the need for art teachers who can teach other subjects. In his sample of school administrators, only 51 out of 182 school officials stated that art was the sole curricular responsibility of art teachers.[2] An examination of annual reports of school superintendents in Kansas also indicates that of the small and medium-size secondary schools which offer art the majority of schools employ art teachers who are also expected to teach other subjects.

In summarizing the foregoing information the following major points have been established:

1. Only 21.4% of all Kansas secondary schools offered art during the 1961-62 school year.

2. In Kansas, and in the nation as a whole, the smaller secondary schools are less inclined than are the larger schools to offer art in their programs.

3. One of the stated reasons for not offering art is the difficulty of acquiring a teacher.

4. The specific qualifications of teachers for specific positions presents a more serious problem than does the gross number of teachers available to fill the gross demand.

---

[1] Ibid., p. 48.

[2] Kenneth Frederick Perry, An Experiment with a Diversified Art Program (New York: Bureau of Publications, Teachers College, Columbia University, 1943), p. 46.

5. In art, as in the case in other subject fields, the smaller secondary schools must have teachers who are also qualified to teach another subject.

The Problem: The Acceptability of Standardization as a Means of Improving Supply-Demand Efficiency in the Field of Art Education

If the supply of new teachers in any field is to be adequate to meet the demand in that field there not only must be a sufficient gross number of teachers, but in situations wherein combination teachers are needed for combination assignments, there also must be a close relationship between the ways in which the combination positions and combination teachers are distributed. In this study such a relationship will be referred to as the "supply-demand efficiency index" (I_{sd}).

The task of matching supply and demand requires that predictions be made of the number of each type of combination art teacher to be available and the number of each type of combination position which will exist. Predictions of this type can be made only on the basis of one or both of the following:

1. Knowledge of the nature of supply and demand in the past on the assumption that the immediate future will be essentially the same.

2. Some system of standardization of art teaching combinations acceptable to both school administrators and college students preparing to teach art.

It would be possible to achieve standardization through strict and absolute control over the supply of teachers for combination art positions. Strict controls, however, are not acceptable and any standardization must come about through the voluntary cooperation of the parties involved.

The rejection of strict control in favor of a high degree of freedom of choice is based on concepts which have their roots in the elective principle in American higher education. The question of how much freedom should the individual be granted to determine his own course of action has been debated throughout the history of this elective principle and is, even today, the center of much controversy.

The opponents of the elective system, or those who would greatly limit the degree of election, centered their arguments on a variety of major points. Belief in the primacy of the classical curriculum, the inability of the student to properly assess his own needs, the need to "discipline" the mind, the evils of a "shallow" academic experience, and the problems inherent in the proliferation of courses along with other administrative ills were, at various times, the chief arguments used in the opposition camp.

Those who favor election tend to subscribe to the belief originally expressed by Charles William Elliot that the elective system makes scholarship possible.[1] The importance of freedom in an educational system which must serve a growing, changing society has been defended by early promoters of the system as well as contemporary workers in education.[2] In answer to those who might allow administrative efficiency or expediency to cloud the issue John H. Fisher states that administrative systems are only means to an end and that our concerns with these means should

---

[1]Frederick Rudolph, The American College and University (New York: Alfred A. Knopf, 1962), p. 304.

[2]Paul R. Hanna (ed.), Education: An Instrument of National Goals (New York: McGraw-Hill Book Co., 1962), p. 155.

not detract from the major purpose of education which is to serve the individual.[1]

The general principle of election is the basis for whatever freedom may exist for the college student to select programs and courses in line with his interests rather than having such programs forced upon him. The importance of this freedom of choice and the recognition of individual differences is supported by considerable literature in the field of education and, more specifically, in the area of counseling and guidance.

A study of factors influencing supply and demand by Ruth Salley used as a basic assumption the fact that any occupational planning must provide for individual differences and freedom of choice.[2] The importance of this freedom to academic success is also emphasized by McConnell in his analysis of the general patterns of contemporary higher education.[3]

Percy E. Burrup is representative of many writers who approach the issue of personal interest from the point of view of the school administrator who hires the teacher. The author points out that subject matter preparation and teacher interest are major criteria in the assignment of teaching duties.[4] Finally, Herman J. Peters makes note of many theorists in vocational counseling who recognize personal interests as a factor which is one of the chief contributors to satisfaction in life and in

---

[1]Ibid., p. 200.

[2]Ruth E. Salley, Some Factors Affecting the Supply of and Demand for Pre-School Teachers in New York City (New York: Bureau of Publications, Columbia University, 1943), p. 2.

[3]T. R. McConnell, A General Pattern for American Public Higher Education (New York: McGraw-Hill Book Co., 1962), p. 20.

[4]Percy E. Burrup, Modern High School Administration (New York: Harper and Brothers, Publishers, 1962), p. 229.

work.[1]

Other studies have established both the desireability and the effectiveness, in practice, of guidance rather than control in the finding of a suitable vocation.[2] The dangers of strict control are implied in other works which in various ways contend that freedom is essential in democracy and that absolute control is fundamentally hostile to the spirit of American higher education.[3]

The extent to which actual practices in colleges and universities conform to the apparent recognition of free choice appears to be high. An examination of college catalogs indicates that Kansas allows for this freedom and, in fact, most colleges throughout the country rely on the process of counseling rather than arbitrary rulings to influence students in their choices of occupational direction.[4]

It has been established that any system of control over, or standardization of, teaching combinations must be established within the framework of freedom of choice rather than strict control. Such a system of voluntary standardization of art combinations is needed in Kansas if it would result in a closer relationship between supply and demand; or, as it is referred to in this study, a higher supply-demand efficiency.

Any examination of the problem of standardization must take note of

---

[1]Herman J. Peters and James C. Hansen (ed.), Vocational Guidance and Career Development (New York: The MacMillan Company, 1966), p. 108.

[2]McConnell, op. cit., p. 92.

[3]M. M. Chambers, Chance and Choice in Higher Education (Danville, Ill: The Interstate Printers and Publishers, Inc., 1962), p. 18.

[4]Russell M. Cooper, Better Schools--Better Teachers (New York: The MacMillan Company, 1944), p. 138.

the effect of the system on college students and school administrators in the event a higher supply-demand efficiency would not result. It must be assumed that if such a system is accepted by college students it could influence the occupational choices made by these students by its promise of improving placement opportunities. In like manner the acceptance of the system by school administrators would imply its use, wherever possible, as a criterion in program planning. Under these circumstances a system of voluntary standardization which does improve efficiency would be valid, useful, and should be adopted. On the other hand if such a system would not improve efficiency it would not only be of little value but would constitute an invalid advisement tool which might tend to direct students into fields less suitable for them in the false hope of improving their placement opportunities. Such an ineffective system also would constitute an unwarranted and invalid criterion for program planning in the secondary schools of Kansas. Under these circumstances a system of standardization of art teaching combinations which does not improve supply-demand efficiency should not be adopted. The question of whether or not to standardize art teaching combinations in Kansas cannot be answered yet due to the lack of knowledge as to whether or not such a system would actually be acceptable and workable to a degree sufficient to improve supply-demand efficiency.

The various facets of the problem of concern in this study have been presented in detail in the above material. The basic nature of this problem and considerations essential to it can now be summarized as follows:

1. Many small secondary schools in Kansas do not offer art due, in part, to their inability to acquire a qualified combination art teacher.

2. A high level of supply-demand efficiency is necessary to utilize to the fullest the available supply of combination art teachers and thus help staff these small secondary schools.

3. Standardization of art teaching combinations would be one means of exercising control over supply for purposes of achieving greater supply-demand efficiency.

4. Standardization would be acceptable only if it allowed voluntary participation and did not deny freedom of choice in occupational selection.

5. A system of voluntary standardization of art teaching combinations should be established in Kansas only if it is sufficiently accepted to actually improve supply-demand efficiency.

6. It has not been possible to determine whether or not such a system should be adopted due to the lack of evidence of acceptability.

This study is designed to determine whether or not voluntary standardization of art teaching combinations would be sufficiently acceptable in Kansas to improve supply-demand efficiency.

Scope and Limitations of the Study

This study is limited to certain problems pertaining to the supply of, and demand for, combination art teachers for secondary schools in Kansas. More specifically the problem of concern here is the distribution of types of combination art teachers needed, within the framework of gross need, and the extent to which this distribution is related to the distribution of types of combination art teachers produced. Differences between gross supply and gross demand, as such, are not the concern of this work.

Problems such as salaries, fringe benefits, and geographic location of employment unquestionably influence the supply and demand situation. These are, however, problems of such magnitude that they justify separate investigation and are not considered a part of this work. In like manner,

qualitative improvements in supply and in the conditions under which combination teachers work are problems which warrant attention in separate studies and will not be considered here.

This work will be limited to considerations of secondary teaching combinations involving art and other academic subjects which require secondary teaching certificates from the State of Kansas. Situations in which the art teacher is prepared for, or assigned duties in administration, study hall supervision, or other duties commonly referred to as extracurricular will not be of concern in this study.

It will not be the purpose of this study to examine the validity of specific combination teaching assignments or combination fields which the pre-service teacher may select.

The sole purpose of this work is to determine the extent to which a system of voluntary standardization would be acceptable in order to improve the supply-demand efficiency in the field of combination art teaching.

Assumptions

It will be assumed that the most accurate available means of assessing the supply of new teachers will be the records of students who satisfactorily complete an undergraduate degree and who become eligible for a secondary teaching certificate. Persons obtaining a masters degree will not be included in the supply on the assumption that a majority of art teachers obtaining a graduate degree will do so, in part, to obtain a position in a large high school or a college. Such positions would call for a teacher of art only and qualified candidates would not likely be combination teachers as herein defined.

It will be assumed that, in the questionnaire used to determine supply, art students who list no second field in which they are now preparing, chose neither an approved nor a standard second field, nor indicate an alternate choice will be looked upon as potential teachers of art only and will not be included in the data for projected supply of combination teachers.

In like manner, in the questionnaire used to determine projected demand, principals who select neither an approved combination, a standard combination, nor an alternate combination will be excluded as part of the demand. This is done on the assumption that these principals would not be likely to hire an art teacher of any kind or would employ a person to teach art only. In either case this would not constitute demand for combination art teachers.

It will also be assumed that consolidation, school district unification, and changes in state and federal aid, will influence gross demand but will not significantly affect the distribution of the demand for specific combinations.

Definition of Terms

Combination teacher: A secondary school teacher who is employed, or qualified for employment, as a teacher of two or more subjects. Unless otherwise stated, one such subject is considered to be art.

Second teaching field: The subject, other than art, which the combination teacher is qualified to teach or in which the prospective teacher is preparing for certification.

Standardization: A general term referring to limits, imposed or recommended, on the number of types of combination positions established

and the number of types of combinations available for selection by students preparing to teach. Combinations are not assumed to be permanent and can be changed within the limits of the system of standardization.

Free-choice system: The practice of assigning teaching combinations in secondary schools on the basis of expediency, tradition, or convenience rather than on a system of standardization of combinations. This term also refers to the unrestricted choice, by a prospective teacher, of a second teaching field from all teaching fields for which work leading to certification is available in the particular college attended.

Standard combinations: Not more than three teaching combinations which would be recommended to prospective teachers in their college preparation and which would be recommended to secondary school administrators as positions to be established in their schools.

Approved combinations: The same as Standard Combinations except more in number and thus constituting a less restrictive system of standardization. The number of these types of combinations is not predetermined.

Supply: The group of people who have satisfied requirements for a Kansas secondary teaching certificate and who have completed the minimum field and subject requirements in one or more teaching fields. Unless otherwise stated "supply" will refer to combination art teachers.

Demand: The attempt, successful or otherwise, to hire a teacher, whether to fill a vacancy in an existing position or in a newly established

position. Unless otherwise stated "demand" will refer to combination art teachers.

Supply-demand efficiency: The extent to which the supply of each type of combination teacher relative to the gross supply of combination teachers corresponds to the demand for each combination relative to the gross demand for all combinations.

Supply-demand efficiency index (efficiency index): A measure of supply-demand efficiency in which 0.00 indicates no relationship between supply and demand and 1.00 indicates a perfect relationship between supply and demand for individual types of combinations. Although highly unlikely, 0.00 efficiency could exist only if there were combination teachers available for whom there was no demand while, at the same time, there existed a demand for other types of combination teachers which were not available. An efficiency index of 1.00 would indicate a perfect relationship between supply and demand. Such an index could exist only if there were a combination teacher to fit every combination demand, and in cases of a difference in gross supply and demand the supply of each combination would be proportioned to the gross supply in the same way as the demand in each combination would be proportioned to the gross demand.

Need for the Study

To satisfy the demand for combination art teachers and to avoid waste of manpower requires that a high relationship exist between the supply and demand distributions of the various types of art combinations. Knowledge of past and present supply-demand conditions and/or standardization of teaching combinations can contribute to achieving this higher

relationship or, as it is referred to in this study, a higher supply-demand efficiency.

It has been established that standardization of teaching combinations must be voluntary and should not deny freedom of choice. For this reason the acceptability of standardization must be determined before such a system can be legitimately established.

The following material provides evidence of a relatively low supply-demand efficiency in the field of art education in Kansas. It also indicates that standardization of art teaching combinations is not in evidence although it has been applied, in various ways, to other fields. The material also points out that information about supply and demand of art combinations has not been available in Kansas and that data of this type is needed.

The Low Supply-Demand Efficiency in Art Education in Kansas

A low supply-demand efficiency has existed in Kansas secondary school art education. Support of this statement is provided by evidence gathered from a number of sources.

Official records have been examined in the six state-supported colleges and universities in Kansas.[1] These records provide information as to the number of persons graduated from these institutions over the last five years who met minimum state requirements which would allow them to teach art and another subject in Kansas secondary schools.

---

[1]These institutions are Kansas State Teachers College, Emporia; Pittsburg State College, Pittsburg; Fort Hays State College, Hays; Kansas State University, Manhattan; University of Kansas, Lawrence; and Wichita State University, Wichita.

Information on the nature of the demand for combination art teachers was secured by means of a questionnaire which was sent to 371 secondary school principals in the State of Kansas.[1] This questionnaire was completed and returned by 344 (92.7%) of these principals. The questionnaire asked if, during the five school years prior to the current year:

1. The secondary school administered by the principal hired a teacher of art?
2. What subject besides art does that person teach?
3. In that same period did the school attempt, without success, to hire a qualified art teacher?
4. If "yes" what other subject besides art would that person have been expected to teach?

The results of this sampling of supply and demand which has existed under the present free-choice system are presented in Table 1 on page 17.

An examination of Table 1 suggests the extent to which supply did not fit demand, especially in certain combinations. Although gross supply was 81.8% of gross demand the supply of art and English teachers was roughly 41% of demand. At the same time the supply of teachers of art and psychology and teachers of art and industrial arts exceeded the demand by 600% and 800% respectively.

Other discrepencies are also apparent in other fields. The supply of teachers of art and languages was proportionately 67% of demand while demand for the art and science combination was approximately 37% of supply. The apparent perfect match between supply and demand for the social

---

[1]A total of 539 questionnaires was actually sent to principals of schools of all sizes of which 465 were returned. For this study, however, only the 371 schools with enrollments of 25 to 699 were used. See appendix for the text of this questionnaire and the letter which accompanied it.

TABLE 1

SUMMARY OF SUPPLY AND DEMAND FOR ART TEACHERS
IN KANSAS SECONDARY SCHOOLS FOR THE
1960-61 THRU 1964-65 SCHOOL YEARS

Subject Combined with Art	Supply	Demand
Business	4	3
English	12	29
Psychology	6	0
Home Economics	15	15
Industrial Arts	9	1
Languages	6	12
Library	3	4
Mathematics	1	3
Music	0	2
Men's Physical Education	1	2
Women's Physical Education	4	6
Science	4	2
Social Sciences	10	10
Speech	6	4
Other[a]	0	6
Any combination	--	11
	81	110[b]

[a]Other duties or fields not considered within the scope of this study; such as, school bus driver, elementary supervisor, etc.

[b]Does not represent the total number of combination teachers needed. Some principals indicated a number of workable combinations each of which was entered in the proper category. The actual number of teachers needed was 99. Fifty-five combination art teachers were actually hired (question #2 on the questionnaire) and 44 principals tried to hire a combination art teacher (questions #3 and #4 on the questionnaire).

science combination becomes less perfect when viewed in proportion to gross supply and gross demand. Considered in this way supply was only 73% of demand in this particular category of combination art teachers.

A more quantitative measure of efficiency can be obtained by use of the formula for I_{sd}:[1]

$$I_{sd} = 1 - \frac{\Sigma(|sD - dS|) - xS}{2SD}$$

This formula provides a measure of the extent to which the distribution of types of combinations in the demand corresponds to the distribution of types of combinations in the supply. This measure is provided irrespective of any differences which may exist between gross supply and gross demand. The data from Table 1 used with this formula results in an I_{sd} of .7509.

This I_{sd} of .7509 may seem high to one familiar with Pearson's r values. A value of r of this magnitude would fall within the .70 to 1.00 range considered by many statisticians as denoting a "high to very high relationship."[2] It must be remembered, however, that values of I_{sd} exist only in the 0.00 to 1.00 range whereas r values can range from -1.00 to +1.00. In consideration of this difference an I_{sd} of .7509 would be more comparable to an r of slightly above .50 which would fall into the .40 to .70 range which would be considered a "marked" relationship.[3]

Combination positions in many other fields are somewhat more standardized than in the field of art. Records from just one of the major

---

[1]See page 49 for description of this formula.

[2]Henry E. Garrett, Statistics in Psychology and Education (New York: Longmans, Green and Co., 1959), p. 176.

[3]Ibid.

teacher producing institutions in Kansas provide some evidence of this degree of standardization.[1] These records show requests for 74 combination teachers of speech. Of these 74 requests, 69 (93.2%) were for teachers who could also teach English. Of the 105 combination industrial arts teachers needed 63 (60.0%) were for men's physical education as the additional subject. In the same year there were 45 requests for foreign language teachers that could also teach English. This represents 69.9% of the total of 79 combination language teachers requested. These are but a few examples from the records of one year. Further examination of the data for that and other years shows similar patterns of consistency and standardization in other fields.

No such consistency appears in the demand for combination art teachers. Table 1 shows English and art to be the most sought-after combination with 29 positions open out of a total of 99 representing only 29.2% of the gross demand. In second place is the art and home economics combination with 15 positions open representing only 15.1% of the total.

There have been instances of conscious efforts to standardize or control teaching combinations in many fields of American education. Research reports the establishment of programs to meet the needs of specific types of combination teaching positions but there is indication of considerable freedom of choice within the framework of these restrictions.[2]

---

[1]This institution, The Kansas State Teachers College of Emporia, was the source of credit which was the basis of 18.2% of all new teaching certificates issued in Kansas for 1963. This is more than any other single institution in the state. This information was obtained from the "President's Annual Report" to the State Board of Regents.

[2]Walter S. Monroe, Teaching-Learning Theory and Teacher Education (Urbana, Ill.: University of Illinois Press, 1952), p. 303.

A 1934 study of curricula in teacher training institutions found that 4 (9%) of the 45 schools examined offered work in the art and music combination but other combinations were also allowed.[1] In another study 182 school administrators indicated that, in their opinion, the "fine" and "industrial" arts constitute a logical and workable combination.[2] An analysis of teaching combinations of 331 Pennsylvania schools found many established combinations but also evidence that the special subjects are most frequently taught singly rather than in combination.[3] This same study indicates that the University of Pittsburgh required students with certain majors to select a minor from a restricted list of subjects; but, art was not included in the list of majors which carried restrictions for a minor nor was art included in any of the restricted lists of minors. In 1940, the date of that study, the author specifically stated that "such practice as is represented by these examples is uncommon at present."[4]

In addition to scattered attempts to standardize teaching combinations there have been efforts to achieve similar objectives through programs of divisional majors. Such programs allow for preparation in broader, related fields rather than in specific subjects. There are also so-called "functional majors" in which programs of study are developed which cross department or division lines for the sake of preparing the individual

---

[1]George P. Deyoe, Certain Trends in Curriculum Practices and Policies in State Normal Schools and Teachers Colleges (New York: Bureau of Publications, Teachers College, Columbia University, 1934), p. 34.

[2]Perry, op. cit., p. 46.

[3]Leonard V. Koos et al. Administering the Secondary School (New York: American Book Co., 1940), p. 333.

[4]Ibid., p. 332.

for a specific position. These and other variations on the conventional major-minor concept have existed for some time to a limited extent but all are described as possessing a high degree of freedom of choice.[1]

The current situation in Kansas is one of apparent great freedom. An examination of general catalogs of the six state colleges and universities provides no evidence of control or restriction on major-minor combinations. Furthermore, no evidence was found of special programs for secondary teaching combinations existing even on an optional basis. Additional evidence to indicate the lack of control over teaching combinations is provided by the Certification Handbook of the Kansas State Department of Public Instruction. This document makes no mention whatsoever of teaching combinations in terms of special qualifications or requirements.

The evidence presented to this point indicates that efforts to standardize teaching combinations in secondary schools by means of strict control have been minimal. Whether the standardization that does exist has come about through conscious efforts, through the accepted logic (valid or not) of certain combinations, or through force of habit is not certain. Regardless of the causes or the means some degree of standardization does exist in many subject fields; however, little now exists in the field of art in Kansas.

The Lack of Information about Supply-Demand Efficiency

The lack of standardization of art teaching combinations in Kansas creates problems which are compounded by the lack of information about supply and demand for these combination teachers. No evidence was found

---

[1]Cooper, op. cit., pp. 45-58.

of the existence of means to collect and disseminate comprehensive data of this type. Information on the types of combination art teachers currently employed in Kansas could be acquired only by examining hundreds of annual reports from school superintendents. The nature of the demand for combination teachers, at a given time, becomes apparent only when school administrators make their needs known to placement services. The extent to which these agencies maintain records of this indication of demand was found to vary considerably and, collectively, proved incomplete and of little use.

The nature of the supply of new combination teachers of art is also information which is not readily available in Kansas. Of the six state institutions only two maintained records which could easily and readily provide data concerning the full qualifications of their groups of graduates. In the other four schools it was necessary to examine transcripts of all the students who had graduated. In regard to students currently enrolled in teacher education programs information was equally lacking. The subjects students would be qualified to teach upon graduation was easily determined in some cases but in one case was not available in any form.

The existence of the above conditions makes supply-demand information, in any usable form, practically unavailable to school administrators, college students preparing to teach, and their advisors. The importance of the information is well documented by the literature in the general field of education, and, more specifically, in the field of vocational counseling.

A study by Ruth E. Salley of factors which influence supply and demand specifically states that effective changes can be made in occupational

distributions only if we have facts about the relationship between supply and demand.[1] The author further states that waste of effort and manpower often can be avoided if people give careful consideration to the supply-demand situation before starting to prepare for work in a given field.

A 1939 study by Francis L. Bailey provides further support for the need to adjust supply and demand to avoid waste. Bailey found that the most effective means to influence the nature of supply was through an effective, informed guidance program in teacher preparation institutions.[2]

The essential character of information in the field of vocational guidance and counseling is clearly established in a statement of policy by the American Personnel and Guidance Association. Among the principles this organization supports is one of freedom of choice in the selection of one's life work and the need for knowledge about career opportunities to make this freedom "flourish."[3]

Two workers in the formulation of theory in vocational guidance agree on the value of information. John L. Holland contends that the availability of information results in more adequate choices of occupations.[4] Eli Grenzberg, in developing a theory of occupational choice, cites compromise as a basic ingredient in "realistic" choices and that involved in this compromise is the weighing of personal goals in

---

[1]Salley, op. cit., p. 80.

[2]Francis L. Bailey, A Planned Supply of Teachers for Vermont (New York: Bureau of Publications, Columbia University, 1939), p. 76.

[3]American Personnel and Guidance Association, "A Statement of Policy Concerning the Nation's Human Resources Problem," Personnel and Guidance Journal, March, 1958, p. 454.

[4]Peters, op. cit., 136.

relationship to what is known about the occupation and its opportunities.[1]

The need for information about supply and demand is implied in a direct statement regarding the choice of careers made in an article which examines employment trends in 1960. Authors Travis and Stein state: "One factor that must be considered in choosing a career is the current situation in the job market."[2]

It has been established that a relatively low supply-demand efficiency exists in Kansas art education and that voluntary standardization would help improve this situation if sufficiently acceptable to college students and school administrators. It has also been established that needed information regarding supply-demand conditions has not been available in this state. It is therefore necessary to determine the extent to which voluntary standardization of art teaching combinations would be acceptable and to secure information on supply-demand conditions in Kansas.

It is the purpose of this study to:

1. Determine if voluntary standardization of art teaching combinations would be acceptable to college students and secondary school administrators in a degree sufficient to improve supply-demand efficiency.

2. Provide certain information regarding the supply of and demand for combination art teachers which has existed in Kansas.

---

[1]Ibid., p. 96.

[2]Herman Travis and Robert Stein, "Employment Trends in 1960," Occupational Outlook Quarterly, May, 1961, p. 3.

CHAPTER II

REVIEW OF RELATED LITERATURE

Proper consideration of the problem outlined in the preceding chapter requires a three part analysis of related literature. The first part leads from the general to the specific in developing a background for the problem of concern in this study. Starting with material dealing with the supply of and demand for art teachers in Kansas and the entire nation the review narrows to the problems encountered in smaller secondary schools wherein special subjects, such as art, often are not full-time teaching responsibilities. Part one of the review then focuses on material which cites the need for some order--even standardization--in the establishment of these teaching combinations.

The second part of this review of related literature presents material from the field of higher education and vocational guidance which constitutes a frame of reference for the validity of proposed solutions to the supply-demand problem. This material establishes the need for information regarding placement opportunities and a background for free choice as an essential concomitant of occupational selection.

The third part of this review deals with statistical devices and procedures usable in studies of this general type. The need for measures of relationship between sets of variables in business, industry, and

education is cited and available techniques for this purpose are examined in regard to their usability in this present work.

Supply and Demand for Combination Art Teachers

Problems related to the supply of and demand for teachers have been treated in a considerable volume of literature. In spite of the abundance of material in this general field there is relatively little that pertains specifically to combination teachers or, still more specifically, combination teachers of art with which this study deals.

Bartels reports that in 1963, on a national scale, the supply of art teachers actually exceeded the demand; in fact, the demand was indicated as being only 59% of the supply.[1] This same study, however, provides evidence that only 67.9% of the country's newly qualified secondary teachers entered the profession immediately upon graduation.[2]

The evidence presented in Bartel's study would seem to be in conflict with the data presented by Maul in his article entitled "Teacher Supply and Demand in Art Education."[3] In this article Maul indicated that supply will soon equal or exceed demand which suggests that an oversupply of teachers does not yet exist. The author continues by stating that there may soon be a surplus of art teachers unless art receives greater support and becomes more in demand in our public schools.

The possibility of an increase in demand for art in our public

---

[1]Martin H. Bartels, "Index of Teacher Demand Through 1963," The Educational Forum, XXIX (November, 1964), 67.

[2]Ibid.

[3]Ray C. Maul, "Teacher Supply and Demand in Art Education," Art Education, December, 1964, pp. 24-27.

schools is indicated by the provisions of the 1965 federal legislation creating a Foundation for the Arts and Humanities. Certain provisions of this bill specifically allow for grants to public school systems for the establishment or expansion of art programs.[1] The extent to which this bill will actually result in an increase in the demand for art teachers is, of course, not yet possible to determine.

An unpublished study by Hickman provides information of immediate use and significance in this study.[2] The work includes an extensive examination of the status of art education in Kansas for the 1961-62 school year. Data is provided as to the number and size of schools which do and do not offer art in their curricula, the number of years art is offered in high schools of various sizes, the number of different art courses offered in secondary schools, and the size of the enrollment in various kinds of high school art classes. Certain recommendations are made, among them is one for more emphasis on the preparation of teachers who are qualified to teach art at both the elementary and secondary level as the solution to the small schools' problem of finding a "part-time" high school art teacher.

Of more direct concern to this study is the problem which exists in the smaller high school which often cannot hire a full-time art teacher. Of particular value in this regard was a recent study conducted by the National Education Association Research Division. Considerable data is presented in this work on the number and percentage of schools of various

---

[1]U. S. Congress, National Foundation on the Arts and the Humanities Act of 1965, Public Law 89-209, 89th Cong., 1st Sess., 1965, p. 12.

[2]Hickman, op. cit.

sizes which offered art. Some evidence was also offered as to the reason for the failure of many small schools to include art in their curriculum. This evidence points to the lack of a qualified teacher as one of the chief causes of the situation.[1]

Certain portions of another NEA Research Division study also deal directly with problems of concern here. The study provides extensive data on the number, sizes, and types of schools offering art, and specific nature of the art programs, problems of supplies and expenditures, duties of teachers, and problems of supply and demand of teachers. Evidence presented in this work points to the fact that not only are smaller schools less inclined to offer art but they also fail to do so because of the lack of a qualified teacher.[2]

Much has been written in recent years about the problem of acquiring specialized teachers in smaller schools which cannot justify the employment of a full-time teacher in these fields. Although many of the solutions to this problem suggested in the literature do not bear directly on proposed solutions presented in this study, a brief examination of this material is useful in understanding the problem faced in this work.

Clark, Klein, and Burks suggest a number of ways whereby the services of specialized teachers might be acquired to bring about an enrichment in the curricula of small secondary schools. The article examines the possibilities of two or more schools sharing a teacher of a specialized subject, moving pupils to specialized facilities and teachers in

---

[1]National Education Association Research Division, "Art Instruction in Public Schools," op. cit., pp. 90-93.

[2]National Education Association Research Division, Music and Art in the Public Schools, op. cit., p. 61.

neighboring school systems, the use of television, programmed materials, and audio-visual aids in general.[1]

Oliver examines the possibilities of enriching the small school curriculum by what is referred to as integrated courses.[2] The author goes on to explain that integration, in this sense, implies the combining of courses such as history and English, physics and shop, and other closely related subject fields. It is also suggested that local professional people might serve as part-time teachers of special subjects.

A report on the Catskill Area Project in Small School Design is presented by Cyr who examines experiments in multiple class situations wherein a number of closely related subjects are taught in the same room at the same time, and by the same teacher. Mentioned specifically in this examination is one case of two art classes and one class of mechanical drawing taught at the same time.[3]

Similar solutions are offered by the National Association of Secondary School Principals Committee on Curriculum Planning and Development. Their study suggests the integration of all the arts--visual, music, theatre, and certain aspects of home economics and industrial arts. It is further suggested that in small schools, where specialized courses are not possible, specialized activities could be conducted in the same

---

[1]Leonard H. Clark, Raymond L. Klein, John B. Burks, "Recent Developments Affecting the Secondary School Curriculum," School and Society, December 26, 1964, p. 412.

[2]Charles F. Oliver, "Improving the Curriculum of the Small High School," The Bulletin of the National Association of Secondary School Principals, XLVII (February, 1963).

[3]Frank W. Cyr, "Enriching the Curriculum of the Small Secondary School," National Catholic Education Association Bulletin, LIX (August, 1962), 317-23.

facilities even with the same instructor and at the same time. It further points out specialized courses are generally feasible only in the larger schools.[1]

A somewhat more philosophical approach, but one having implications for the mechanics of offering art, is presented by Thomas Munro.[2] Munro develops the concept that art experiences exist as parts inseparable from the whole of education and that all the arts are ideally inseparable. Such a principle, if adhered to, would influence the mechanics of offering art in schools. Munro's study constitutes a reasonably sound argument against the isolation of art as a separate specialized offering in the public schools and would strongly favor the inclusion of art activities as an integral part of all other studies.

The May, 1964, issue of Art Education includes an article which encompasses many short reports by different authors examining certain new approaches being taken in the field of art education.[3] Of particular interest, as background material for this study, are the examinations of the art appreciation rather than the studio approach to art in school systems. Such an approach has been experimented with rather extensively in the high schools of the State of New Hampshire, the Detroit school system, and the schools of Portland, Oregon. Also under examination was

---

[1]National Association of Secondary School Principals Committee on Curriculum Planning and Development, "The Arts in the Comprehensive Secondary School," The Bulletin of the National Association of Secondary School Principals, XLVI (September, 1962), 1-19.

[2]Thomas Munro, The Creative Arts in American Education: The Interrelation of the Arts in Secondary Education (Cambridge: Harvard University Press, 1960).

[3]Olive Roberts et al. "New Directions in Secondary School Art," Art Education, XVII (May, 1964), 18-23.

an experiment conducted in the University High School of the College of Education, University of Hawaii, in which combination facilities are available for the teaching of music, art, drama, and speech. Finally, information is presented regarding a course entitled World of Art offered in the schools of Los Angeles. This course was a carefully structured combination of history, appreciation, and studio work in art.

Bohrson and Pigott are the authors of a report on The Rocky Mountain Area Project for Small High Schools.[1] The report examines rather extensively the possibilities of multiple class teaching and the use of films and visual-aids as an adjunct to, or substitute for, lectures by the teacher. The conclusion drawn in this study is that there is a need for more research into the kinds of subjects or subject levels which can be effectively taught in multiple classes.

Hubbard specifically treats the change in attitude which becomes apparent in the review of the recent literature in the field of art education.[2] This attitude is best expressed by the tendency to think of art history and appreciation as being as important if not more important than studio or practice type of art course. Hubbard claims that the history-appreciation and studio activities of the public school art class are inseparable and should be handled by the same teacher who must be adequately trained to do both. The article also constitutes a brief but forceful statement for the place of art as an integral part of the total education of the child.

---

[1]Ralph Bohrson and L. D. Pigott, "How Can Better Staff Utilization Help Improve Small High Schools?" National Association of Secondary School Principals Bulletin, XLIV (April, 1960), 134-38.

[2]Guy Hubbard, "Art in the Schools--No Fork in the Road," Art Education, XVII (December, 1964), pp. 10-12.

Although these experiments indicate some effort to improve the teaching of art, their impact on staffing problems is not yet determined. The teachers for such programs are still art teachers, though with somewhat different preparation, and no solutions were offered to the problem of the multiple subject assignment these teachers might face in smaller schools.

Future changes in the nature of the high school art offering may influence the types of combination art teachers needed and the types of combination programs found desireable by future teachers. Although the above cited material provides evidence of some experimentation and a degree of change in attitude, no evidence was found to suggest trends significant enough to have impact on practices and needs in the forseeable future.

Douglas deals in part with the problems faced by school administrators in multiple-subject teaching assignments.[1] The author suggests that there are three basic causes of these problems: (1) Core curriculum which requires multiple preparation in the teacher's education and work; (2) The small school which cannot afford to hire a full-time teacher for many subjects; and (3) The policy of permitting older teachers to select the subjects which they wish to teach whether or not such assignments are in the best interest of the school and its students.

Chamberlain and Kindred deal with the teachers' qualifications, employment opportunities, and teaching assignments in the small high schools.[2] The author specifically states that the teacher increases his

---

[1]Harl R. Douglas, Modern Administration of Secondary Schools (2nd ed.; Boston: Ginn and Co., 1963).

[2]Leo M. Chamberlain and Leslie W. Kindred, The Teacher and School Organization (2nd ed.; New York: Prentice Hall Inc., 1949), p. 125.

opportunities for placement, especially in smaller high schools where most teachers carry assignments in at least two different instructional fields, if he is adequately prepared in a strong minor or a second teaching field.

One of the more significant works in relationship to this study is another project of the Research Division of the National Education Association.[1] The study provides considerable evidence to bear out the fact that many schools in rural or semi-rural areas must have teachers who are qualified to accept positions in two or even three teaching fields. Viewing the problem from the standpoint of the teacher the study states that a carefully selected minor field in combination with a major subject is highly important and perhaps a vital necessity in obtaining a first position. The authors suggest, and they are supported by data offered, that as serious as the teacher shortage may be in terms of gross numbers of even greater significance is the need for a better distribution of the available annual new supply of teachers among the various teaching fields.

A study which contributed significantly to this present work is reported in a book by Perry.[2] Using questionnaires as a chief means of measuring school administrators' attitudes toward problems of the art program, the study suggests methods of combining, organizing, and teaching the arts which could overcome the many existing problems of costs, facilities, and staff. It specifically lists the need for art teachers who can teach other subjects in schools with limited demand for art.

---

[1]National Education Association Research Division, Teacher Supply and Demand in Public Schools, 1965, op. cit., p. 29.

[2]Perry, op. cit.

Among other things, the questionnaire to school administrators asks the extent to which art teachers could be used in art classes only, the logic and acceptability of certain curriculum mixes, and opinions as to the mixing of boys and girls in various grades in certain combined industrial and fine art courses. Of particular importance was the need, expressed by the majority of school administrators, for teacher training institutions to develop teachers who can serve in more ways in the school systems.

Examination of the literature related to this study provides evidence of the need for standardization in teaching combinations. Tracey deplores the lack of logical planning in the establishment of teaching assignments.[1] He states that there is evidence pointing to the practice of making assignments based on expediency, desperation, or necessity rather than on sound utilization of available talents. One of the author's major points is that an effective use of the backgrounds and talents of professional staff can best be realized through a career management system--a system of preparing teachers for assignments based on logic.

Cooke examines problems of teaching assignments in relation to the job to be done by the teacher training institutions.[2] The author states that if school officers would organize staff load and teaching assignments in such a manner that combinations which are now most frequent can become more or less standardized, the task of the teacher training institution will be much more clearly defined.

---

[1]William R. Tracey, "Needed: A Career Management System for Teachers," The American School Board Journal, CIL (October, 1964), 19-21.

[2]Dennis H. Cooke, Administering the Teaching Personnel (Chicago: Benjamin H. Sanborn and Co., 1939), p. 247.

Bartels, in his previously cited work, also refers directly to the need for the methods to achieve standardization in teaching combinations. The author considers those factors which should be examined in an attempt to exercise control over the supply of new teachers in relationship to the demand. In this regard he places emphasis on the individual preferences of prospective teachers as the major consideration in attempts to regulate supply.

Koos and others make brief mention of attempts, especially in southern states, to standardize teaching combinations.[1] In this publication considerable attention is given to problems related to multiple teaching assignments especially having to do with equalization of load and adequacy of training to teach some subjects. There is an indication also of some attempts to make assignments logically; however, the general picture is stated as one of complete chaos in the assignment of combination teaching duties.

Hagstrom is author of an article which is a review of the literature on better staff utilization.[2] The conclusions drawn by the author center on the fact that the efficient use of professional talent, energy, and time is a desperate need in this period of growth and demand for qualified teachers to serve our schools.

The need for combination teachers and the need to achieve some order in the chaotic supply-demand situation is adequately documented by literature in the field. Passing attention has been given, in previously cited

---

[1]Koos, op. cit., p. 388.

[2]Ellis Hagstrom, "Fit Teacher to Job or Job to Teacher?" Overview (August, 1961), p. 7.

works, to efforts to arrive at workable solutions to this problem. Very little material was uncovered which cites specific means to achieve some order or which reported actual attempts to employ these means.

In a 1939 publication, Bailey reports on a study which seeks ways and means of achieving a balance between supply and demand for teachers in that state. The work concentrates on planning and controlling the supply of teachers and essentially excludes any consideration of influencing the nature of the demand.[1]

Monroe is author of a book which, in part, examines the history of curricular requirements in teacher education. As a part of this historical review, the author cites research in the 1920's which uncovered cases of programs of study designed to fill the need for certain types of combination teachers.[2]

Cooper reports on a cooperative venture by several colleges in the development of procedures to improve the quality of the teachers produced. Of significance to this present study are analyses of such conflicts as breadth vs. depth of preparation, academic vs. professional education emphasis, and choice vs. prescription in courses of study. Attention is given to "functional majors, divisional majors," and other variations on the major-minor concept as means to resolve these conflicts and produce more employable teachers.[3]

Another study by Deyoe, published in 1934, is a more detailed analysis of current offerings in teacher training institutions. On the basis

---

[1]Bailey, op. cit., pp. 76-77.

[2]Monroe, op. cit., p. 303.

[3]Cooper, op. cit., pp. 138-41.

of a survey of 45 such schools numerous examples of programs designed for combination teachers were found. The majority of such programs were found to be developed in the less specialized subject areas and art was rarely included in these standardization efforts.[1]

The four sources just cited deal with means to standardize and cases wherein these means were employed but make no mention of the bases for the establishment of the combinations. No material was found which deals with the problem in this way nor was the issue of good and bad combinations treated in any work uncovered. An abundance of research and writing has been produced on the criteria for a good teacher but nothing was discovered on the criteria for a good combination of teaching fields. In like manner, much has been done to report supply-demand conditions in the various teaching fields but there is a marked absence of similar work dealing with the combination teaching positions.

To summarize the first part of this review of related literature, the following major points may be re-stated:

1. Combination teachers have been needed in smaller secondary schools and there is evidence to support the assumption that this need will continue to exist in the future.

2. There is a need to achieve the greatest possible efficiency in the use of available teaching personnel.

3. Standardization, or some other means of control over teaching combinations, has been cited as necessary to achieve greater efficiency.

4. Some efforts to standardize teaching combinations have been employed but rarely has art been included as a standardized combination subject.

5. Little information is available on supply of and demand for combination art teachers; criteria for establishing these or other

---

[1]Deyoe, op. cit., pp. 34-36.

combinations; or the popularity, usability, or validity of teaching combinations.

The Need for Information and Freedom of Choice in Occupational Selection

The problem of mis-match between supply and demand in the field of art education could be solved by strict control of the combinations in which future teachers prepare. The fact that such a system would be unacceptable is supported by an abundance of evidence obtained from the literature in the fields of higher education and vocational guidance. Much of this same material also indicates the desireability of freedom of choice and the need for adequate information upon which an intelligent choice can be based.

The following material by no means represents the full extent of pertinent material on this subject but to cite all such works would be unnecessarily repetitious. Although differing points of view do exist what is included here is representative of a body of thought so large as to very nearly discredit the minority point of view.

Rudolph provides a brief but sufficiently comprehensive examination of the history of the elective principle in American higher education. In addition to his historical treatment of the subject the impact of the elective principle is examined in relation to curricular changes, growth of colleges, general education, pre-professional studies, student attitudes and achievement, and many other facets of past and present higher education. In the author's analysis of the good and bad features of election he refers to its significant contribution to the raising of academic standards and to the motivation of the student toward the achievement of

higher levels of scholarship.[1]

A compilation of short papers by various authors is edited by Hanna. One such paper by Cowley examines the elective principle as a major factor in aiding the colleges in their efforts to serve the needs of a democratic society.[2]

This same publication includes a paper by Fischer which cites the problems related to the task of an educational system which must serve the needs of individuals. Mention is made of the conflicts which often arise between the valid goals of education and the needs of the administrative function in institutions of higher learning.[3]

Research undertaken by Weeks examines the history and the present (1931) status of the elective system in relation to reasons why college students enroll in courses. The results of the study led to recommendations for a considerable degree of free choice on the part of students and a reduction in the number of specific course requirements.[4]

Part V of a 1946 publication of the North Central Association of Colleges and Secondary Schools deals with current practices regarding programs of study in American colleges and universities. Included in this report is an analysis of the status of election and some indication of the changes taking place in the amount of elective work allowed. The study reports a reduction of elective work in only 28% of the colleges

---

[1]Rudolph, op. cit., pp. 287-304.

[2]Hanna, op. cit., pp. 150-74.

[3]Ibid., pp. 192-210.

[4]Helen Foss Weeks, Factors Influencing the Choice of Courses by Students in Certain Liberal Arts Colleges (New York: Bureau of Publications, Teachers College, Columbia University, 1931), p. 56.

examined.[1]

Chambers considers the basic issue of freedom vs. control in American colleges and universities. Although the bulk of material is concerned with the administrative and organizational aspects of this issue portions of the work deal with the moral and practical implications of strict control over admissions to various fields of study.[2]

A similar work by McConnell considers the planning of the institution and its programs to fit the needs of the individual in a democratic society. The author essentially supports the opinions and findings of the previously cited work and, in addition, provides an analysis of the strengths and weaknesses of both prescription and election.[3]

McGlothlin deals with the total problem of education for the professions. Chapter five examines recruitment and selection of students as functions related to supply and demand. The author states that institutions must exercise control over supply of professional people produced but cannot, in the process, ignore the demands of students for education in their chosen fields.[4]

A portion of a work by Burrup considers the recruitment and assignment of teachers a major factor in the complex of problems faced by high school administrations. In this context the author examines teacher interest and other considerations which are important criteria for

---

[1]Commission on Colleges and Universities, Report of the Committee on Postwar Education (Chicago: North Central Association of Colleges and Secondary Schools, 1946), pp. 15-20.

[2]Chambers, op. cit.

[3]McConnell, op. cit., pp. 20-92.

[4]William J. McGlothlin, Patterns of Professional Education (New York: G. P. Putnam's Sons, 1960), p. 138.

staffing in the schools.[1]

Editors Peters and Hansen present short writings by a number of authorities on vocational guidance. This 1966 publication deals with problems and new developments in guidance as it is related to career development. Part III is of particular value in its treatment of theories of vocational and occupational choice as presented by such writers as Ginzberg, Super, and Holland.[2] These three men express in the structure of their theories the same concept of informed freedom of choice as was included in a statement of policy by the American Personnel and Guidance Association. In 1958 that group went on record supporting certain principles which serve as criteria for effective vocational guidance. Included as one of these principles is the freedom to choose one's life work and in order for this freedom to flourish the student must learn about career opportunities.[3]

A study by Salley employed questionnaires to identify and analyze factors which influence the relationship between supply and demand. Although this work was limited to pre-school teachers in the State of New York, its findings are, in part, significant in other fields and on other levels. As a result of the study the author recommends that the supply-demand situation in any field should be carefully considered before one begins to prepare in that field. She also indicates that study of the supply-demand conditions is needed in all fields.[4]

---

[1]Burrup, op. cit., pp. 227-33.

[2]Peters, op. cit., pp. 93-140.

[3]The Executive Council of the American Personnel and Guidance Association, "A Statement of Policy Concerning the Nation's Human Resources Problems," Personnel and Guidance Journal, XXXVI (March, 1958), 454.

[4]Salley, op. cit., p. 80.

Part II of the 64th yearbook of the National Society for the Study of Education, edited by Hastie, analyzes the responsibilities of a state art supervisor. Specific mention is made of the importance of information being made available regarding the forthcoming supply of new art teachers. The work cites gathering and disseminating supply-demand information as one of the functions of the office of state art supervisor.[1]

The multiplicity of works, of which the above cited material is representative, provide evidence to support the following major points:

1. The elective principle is considered to have been a significant contributor to increased student motivation and scholarly achievement.

2. The elective principle and the freedom it fosters is necessary in a student centered democratic educational system.

3. The freedom to choose on the basis of individual interests is an important consideration in the structuring of college programs of study.

4. Freedom of choice in career selection is essential from moral, theoretical, and practical points of view.

5. The principle of freedom of choice in occupational selection requires that adequate supply-demand information be available to serve as one of the bases for the making of suitable choices.

The Measurement of Supply-Demand Relationships

The method employed in this study required a quantitative measure of the relationship between supply and demand distributions of various art teaching combinations. Since measures of relationship are extensively used in education and other fields it was necessary to examine the literature in these various fields to determine the extent to which one or

---

[1]W. Reid Hastie (ed.), Art Education, Sixty-fourth Yearbook of the National Society for the Study of Education, Part II (Chicago: University of Chicago Press, 1965), p. 219.

more, if any, existing statistical devices would be suitable for use in this study.

This third part of the review of related literature cites material which examines uses, in business and industry, similar to the use for statistics in this study. There follows references to works which deal with the possibilities and limitations of existing statistical devices and the general nature of index number construction. Finally reference is made to material having to do with the test of significance needed for this present work.

Flippo discusses many aspects of personnel management which require or can be made more efficient through the use of quantitative measurement. The author specifically discusses comparisons between personnel and established criteria which constitute measures of efficiency roughly comparable to supply-demand efficiency measures made in this study.[1]

Riggleman and Frisbee cite many uses for statistical measures in business and industry. Included in this material is reference to comparisons between productivity of workers and machines, between groups of salesmen, and between sales personnel and quotas for the sale of different lines of merchandise.[2] The authors also examine the statistical devices commonly used for such purposes.

A more detailed analysis of statistics is provided by Stockton. Part IV of his book deals with uses for statistics and adds little to that presented in the previously cited works. In his analysis of methods

---

[1]Edwin B. Flippo, Principles of Personnel Management (New York: McGraw-Hill Book Company, Inc., 1961), p. 278.

[2]John R. Riggleman and Ira N. Frisbee, Business Statistics (3rd ed.; New York: McGraw-Hill Book Company, Inc., 1961), p. 278.

the author mentions only rank correlations as means of measuring relationships in cases wherein the assumption of normality in the distribution cannot be made.[1]

Dubois covers essentially the same material as the work by Stockton except for somewhat more emphasis being placed on measures of relationship. Dubois states that many situations in business and economics are such that the assumption of normality cannot be made and therefore the more common measures of relationship are of questionable use. The only devices mentioned by the author to be usable in such situations is the rank correlation methods.[2]

Tate and Clelland analyze three non-parametric measures of relationship. Only Mood's method of fitting regression lines was cited as more accurate than the other two rank correlation measures but this method is usable only with continuous data.[3]

Chapter ten of a general statistics book by O'Toole deals with the construction of index numbers of the type commonly used in economics. The author states that index numbers exist in abundance and are designed to serve a wide variety of uses.[4]

Another general book on statistics by Garrett has portions devoted to measures of relationship and non-parametric statistics but adds little

---

[1]John R. Stockton, Introduction to Business and Economic Statistics (3rd ed.; Cincinnati: South-Western Publishing Co., 1966), p. 594.

[2]Edward N. Dubois, Essential Methods in Business Statistics (New York: McGraw-Hill Book Company, 1964), pp. 140-56.

[3]Merle W. Tate and Richard C. Clelland, Nonparametric and Shortcut Statistics (Danville, Ill.: Interstate Printers and Publishers, Inc., 1957), p. 78.

[4]A. L. O'Toole, Elementary Practical Statistics (New York: The MacMillan Company, 1960), p. 321.

to the previously cited works in this regard. Of greater value is the analysis of Fisher's Z function and its use in testing the significance of difference between two r's.[1]

A more detailed examination of this test of significance is provided by Fisher himself. Fisher's work provides a more comprehensive treatment of the theory and application of this statistical method.[2]

The following major points were derived from this review of the literature in the field of statistics:

1. A wide variety of quantitative measures of relationship are used in education, business and industry.
2. The only statistical devices found for this purpose require the assumption of normality in the distribution of variables, were limited to use with continuous data, or were the less accurate measures of rank correlation.
3. Indexes also constitute a valuable and widely used means of organizing data.
4. Indexes are used in a multitude of forms and are often constructed especially to fulfill a given need.
5. No existing measure of relationship or index number system was found to be suitable for use in this study.

Summary of the Review of Related Literature

This study is concerned with the problem of mis-match between the supply of and demand for combination art teachers in Kansas. Because of this situation many small Kansas high schools cannot find a qualified teacher for the combination art position established while, at the same time, other art teachers cannot find positions open in the combination for which they have prepared. This condition is caused, in part, by the lack

---

[1]Garrett, op. cit., pp. 241-53.

[2]R. A. Fisher, Statistical Methods for Research Workers (New York: Hafner Publishing Company, 1950), pp. 203-04.

of standardization of art teaching combinations and the total lack of useful information regarding supply and demand for the various combinations.

The material presented in this review of related literature establishes that combination teachers have been employed in smaller secondary schools and that the need for people of this type is likely to continue in the future. It has also been shown that art, a subject for which there is relatively less demand, will need to be taught by dually trained teachers in many of these smaller schools.

The evidence presented points to numerous attempts to standardize teaching combinations through varying degrees of control over teacher education programs. The majority of these cases, however, allowed a degree of choice even within the framework of restriction. It also has been shown that art, along with other "special" subjects, was most frequently excluded from these standardized programs.

Although the subject of standardization is treated in numerous works there is an apparent lack of material which deals with criteria for establishing combinations. In like manner no studies were found which examine the usability, popularity, or acceptability of various teaching combinations. In the State of Kansas there is no evidence of conscious effort to standardize art teaching combinations nor has there been available any useful information on the overall supply-demand situation in this field. The importance of such information to counseling and career development has been established by certain of the previously cited works.

Writers in the field have cited the lack of order in the establishment of teaching combinations and some specifically suggest standardization as a means to achieve better staff utilization and to clarify the

task of teacher education institutions. It would be possible to achieve this order by strict control over the types of combination programs made available to college students preparing to teach. Such controls, however, would be contrary to the principle of freedom of choice in career selection which is so clearly supported by the writings in higher education and vocational guidance. On the basis of the evidence available it must be concluded that any system of control or standardization must allow voluntary participation and must retain the element of freedom in the selection of an occupation.

In addition to any other benefits that voluntary standardization might or might not provide such a system must be sufficiently acceptable to improve supply-demand efficiency. Even if certain art combinations were found to be better for reasons other than acceptability their lack of acceptance on the part of college students and/or school administrators could still produce inefficiency and waste of talent.

The creation of an unacceptable system of voluntary standardization would have more to its discredit than mere ineffectiveness. Such a system would be undesirable and even harmful inasmuch as it would constitute a misleading advisement tool and an invalid criterion for programming in the secondary schools. It therefore follows that no system of standardization should be adopted until and unless its acceptability, sufficient to improve supply-demand efficiency, has been established.

This study is designed to determine whether or not some system of voluntary standardization of art teaching combinations would be sufficiently acceptable in Kansas to improve supply-demand efficiency. In so doing this work will contribute to the eventual solving or alleviating of

the mis-match problem in this state and in any other location where similar influencing factors may be found to exist.

In addition to and in the process of accomplishing this primary objective information was gathered about the supply of and demand for combination art teachers as it has existed in Kansas. Aside from the question of standardization this information will prove of value to school administrators, college students planning their programs, and to these students' advisors.

This present work may also find use as a model for studies in other fields or other locations where similar problems exist or questions arise. In this regard the study also offers a statistical device more suitable for such applications than those already available.

CHAPTER III

METHOD EMPLOYED IN THE STUDY

To determine the acceptability of some system of standardization and to provide needed supply-demand information on Kansas secondary art education the following method was employed. In general, comparisons were made between the supply-demand efficiency index of the free-choice system of selecting and determining art teaching combinations and the efficiency indexes of systems of approved and standard combinations developed as a part of this study. The hypotheses tested are:

1. The supply-demand efficiency index of a system of approved combinations is higher, to a 0.05 level of significance, than is the supply-demand efficiency index of the present free-choice system.

2. The supply demand efficiency index of a system of standard combinations is higher, to a 0.05 level of significance, than is the supply-demand efficiency index of the present free-choice system.

Specifically the method employed is outlined in the following steps along with the type of data used and the sources of that data.

The Formula for the Supply-Demand Efficiency Index

A quantitative measure of the relationship between supply and demand is an essential part of this study. Thorough examination of existing statistical devices failed to produce a useful technique in this situation; therefore, a formula was derived which serves this purpose.

In general, the supply-demand efficiency index (I_{sd}) is a measure of the relationship which exists between the distribution of the supply of various types of combination art teachers and the distribution of demand for these combination teachers. As such, I_{sd} is a type of correlation coefficient.

The formula for the supply-demand efficiency index must first measure the discrepencies, or differences, which exist between the supply and demand in each of the combinations listed. Once such measures are made these discrepencies (which for purposes of this study are absolute values) are summed and used in comparison with the total of the supply of, or demand for, all combinations. Thus, a ratio is established which is the sum of the absolute differences between the supply and demand of individual combinations over the total supply or demand for all combinations. In this state, the formula would read:

$$I_{sd} = \frac{\Sigma(|s - d|)}{S} \qquad \text{(Assuming } S = D\text{)}$$

In which:

s = Supply of each combination
d = Demand for each combination
S = Gross supply of all combinations
D = Gross demand for all combinations

It becomes immediately apparent that such a ratio in itself is not satisfactory insofar as differences which exist between the gross supply and gross demand would distort the ratio and thus not give a true picture of the extent to which the distribution of demand "fits" the distribution of supply. To eliminate this problem, the values for supply and demand in each of the categories or types of combinations are standardized to make them, in effect, values which are proportionate in their relationship to gross supply or gross demand. This results in a ratio expressed

as:

$$I_{sd} = \frac{\Sigma(\left| sD - dS \right|)}{SD}$$

It is necessary at this point to interject a correction for those cases wherein a school administrator does not specify the combination he needs; rather, he requests a teacher qualified to teach art and "any other subject." Since such a request would improve the "fit" of the distribution of supply with that of demand, it is necessary to subtract that standardized quantity from the sum of the differences which exist between the supply and demand in all the other specific combinations. The formula now reads:

$$I_{sd} = \frac{\Sigma(\left| sD - dS \right|) - xS}{SD}$$

In which:

x = Number of unspecified requests

In this state the formula would produce an index in a range of 0.0 to 2.0 in which 0.0 would represent the worst possible fit. Subtracting such a value from one (1) would result in a possible range of index values from -1.0 through 0.00 to +1.0 which is unsatisfactory in that negative correlations, or negative measures of relationship, are of no significance and could be misleading in this study. To produce a range of index values from 0.0 to 1.0 in which zero represents the worst possible fit and 1.0 represents a perfect fit the denominator in the above ratio is multiplied by two (2) and the entire quantity subtracted from one (1). These changes produce the formula in its final state:

$$I_{sd} = 1 - \frac{\Sigma(\left| sD - dS \right|) - xS}{2SD}$$

In actual use "D" represents the total number of types of positions

open rather than the number of teachers needed. For example: If a school can use a teacher in either of two combinations this constitutes one open position but two types of positions into which qualified candidates might fit.

In tabulating data for purposes of calculating $\Sigma(\left| sD - dS \right|)$ any school which could use any combination could also be treated in this manner except that the xS portion of the formula is a mathematically simpler way of achieving the same end result. In broader applications of the formula, wherein there are no unspecified categories of demand (x), x would equal zero and therefore be non-functional in the formula.

Other Uses for the Formula for I_{sd}

Indexes of a number of types have been used in educational research in the past and in most cases the specific technique was developed to serve a particular need. In general these previously used indexes were simple ratios employed as measures of less complex relationships than those dealt with in this study.[1]

The formula for I_{sd} has potential for wider use than merely the measuring of supply-demand efficiency in relation to combination art teachers. The most obvious applications would be in analyses of supply and demand in other combination fields not involving art or in similar studies of single subject teachers. The National Education Association study entitled Teacher Supply and Demand in Public Schools, 1965 cites the need for a better distribution of the new supply of teachers among

---

[1]W. W. Charters, Ed., "The Supply of Teachers and the Demand," Educational Research Bulletin, IX (November 5, 1930), 437-73.

the various teaching fields.[1] This efficiency index can serve as a quantitative measure of that distribution.

Index numbers also are widely used in business and industry. The construction or calculation of such indexes are considered by statisticians to be highly dependent on the nature of the available data and the particular need to be served by the index. Although designed in many different ways and for many different purposes they are, in general, used to ". . . organize and present data so that interpretations needed for certain purposes can be made most easily."[2]

Most indexes are commonly employed as "norms" against which earlier or later conditions are compared. As such the element of time becomes a major factor and any one index number will often have no meaning until compared with other indexes of like kind. The supply-demand efficiency index developed in this study can be used to make comparisons of conditions over a period of time and also has meaning in itself as a quantitative measure of relationships.

The need for indexes and other measures of relationship for use in business and industry is clearly supported by literature in these fields. Edwin Flippo, in his discussion of performance appraisal, cites the need for some system which produces periodic and impartial ratings of personnel in a form which allows comparisons of individuals and established criteria of performance.[3] Among the advantages of such a system which the author discusses are guidance in and support for the decision making

---

[1]National Education Association Research Division, Teacher Supply and Demand in Public Schools, 1965, op. cit., p. 29.

[2]O'Toole, op. cit., p. 320.

[3]Flippo, op. cit., pp. 277-79.

function, stimulation and guidance in employee development, improvement of supervisory skills, and usefulness in labor-management negotiations. Flippo also examines a number of performance appraisal systems most of which are based on subjective evaluations. Mention is made, however, of a few more objective techniques but information regarding statistical procedures or methods is not included in his work.

Production efficiency is another area in which efficiency of workers and/or machines must be compared against criteria. In the realm of marketing comparisons also must be made between sales groups and their effectiveness in selling different lines of merchandise.[1]

To satisfy these needs of business and industry numerous statistical devices are in use. When it is necessary to measure relationships between groups of variables, such as in situations of the type mentioned above, Pearson's product moment coefficient of correlation is most commonly used.[2] Edward Dubois in Essential Methods in Business Statistics describes in detail many methods used for similar purposes. He includes in his discussion the regression line to show the pattern of relationship, standard error of estimate as a measure of the scatter, or variation, of cases around the regression line, and the coefficient of determination to measure the degree of closeness of the relationship.[3] Dubois also discusses various rank correlation methods useful in many business situations wherein large departures from normality of distribution frequently exist. The author states that the use of most regressions or correlations are

---

[1]Riggleman, op. cit.

[2]Ibid., p. 238.

[3]Dubois, op. cit.

questionable in such cases.[1]

As stated by Dubois and others many situations exist in business and industry wherein the assumption of normality in the distribution cannot be made. Since it will be shown that the formula for I_{sd} is usable in these situations it is necessary to consider the other statistical devices available for use in these cases. John R. Stockton in Introduction to Business and Economic Statistics specifically states that linear regression equations, coefficients of determination, coefficients of nondetermination, and coefficient of correlation and alienation are based on the assumption of normality. The author mentions only rank correlations as usable measures of relationship between two sets of variables which are not dependent on normality in the distributions.[2]

Certain methods of measuring relationships which do not assume a normal distribution in the population are mentioned by Tate and Clelland in Nonparametric and Shortcut Statistics. The authors cite the Rank-difference and Tau coefficient methods as usable when rank correlations would provide sufficient accuracy. Mood's nonparametric method of fitting regression lines is also discussed but its use is applicable only to continuous data.[3]

It is apparent that numerous statistical devices are available to business and industry for use in making quantitative measures of relationships between sets of variables. It is also apparent that the more sophisticated of these techniques require the assumption of a normal

---

[1] Ibid., p. 156.

[2] Stockton, op. cit.

[3] Tate, op. cit.

distribution of the variables in the population or, if this assumption cannot be made, continuous data can only be used. No device was found to be possessed of the following characteristics:

1. Accuracy greater than that provided by rank correlations.
2. Usable with discrete data.
3. Assumptions of normality not required.

The formula for I_{sd} uses the exact values of supply and demand in each category and not simply their position in a series such as is the case in rank correlation methods. Accuracy may be lost in translating such scores into ranks.[1] A supply-demand distribution of this type can easily yield a perfect rank correlation while still constituting a far from perfect relationship. Under these circumstances it may be assumed that the formula for the supply-demand efficiency index developed for this study provides greater accuracy than that which might be derived from rank correlation methods. It is also apparent that discrete data can be employed. Regarding its use in situations lacking the assumption of normality certain facts must be considered. The value of I_{sd} is dependent solely on the differences between the pairs of proportionate values in the two distributions. It is in no way affected by the shape of either distribution nor the relationship of these samples to their respective population distributions. In this sense I_{sd} is a distribution-free measure and would be equally usable with or without the assumption of normality.

The following added advantages to the use of I_{sd} also exist and may be of significance in some situations.

---

[1]Garrett, op. cit., p. 375.

1. Relative simplicity in calculation as compared to some devices such as Pearson's r.

2. Ease of adaption to situations in which N^1 (S) and N^2 (D) are not equal.

3. The xS factor in the formula to simplify treatment of unclassified data.

The foregoing material is not designed to suggest that the formula for I_{sd} will be widely usable in business nor that it is superior, in most situations, to existing techniques. The intent here is to simply establish its place in the roster of statistical devices on the assumption that even limited usefulness is sufficient justification for its existence.

It is reasonable to assume that the complexities of business and industrial operations will continue to demand the most efficient means to solve problems. New techniques which provide greater ease, speed, or accuracy even if limited in their application can be of significant value.

The Use of Fisher's Z Function in the Test of Significance of Differences Between I_{sd}'s

In the test of significance of the difference between I_{sd}'s, a procedure may be used which is comparable to the test of significance of the difference between two r's (Pearson's Product-Moment Coefficient of Correlation). Fisher's Z function is the key to a useful and mathematically exact method of determining the standard error of the difference between two r's. Its use, in this way, is explained fully in R. A. Fisher's Statistical Methods for Research Workers.[1] The validity of using the Z function to determine the standard error of difference

---

[1]Fisher, op. cit.

between two I_{sd}'s depends on the extent to which r and I_{sd} are comparable in their use and in those properties of r and I_{sd} which affect, or are affected by Fisher's Z.

The use of the supply-demand efficiency index (I_{sd}) is comparable to the use of Pearson's product-moment coefficient of correlation insofar as both are measures of the relationship of one variable to another. In short, both r and I_{sd} are quantitative expressions of closeness of association or degree of correspondence.

Although specific values of r and I_{sd} and the ranges in which they could exist are not the same ($r = -1.0$ to $+1.0$ and $I_{sd} = 0.0$ to $+1.0$) this difference does not invalidate the use of Z in the test of significance for the following reasons:

1. The table used to convert r's to Z's encompasses only the range 0.0 to 1.0 irrespective of positive or negative values of r. Under such circumstances Z, when used to test the significance of the difference between values of r, functions only in that range the same as it does if used to test I_{sd}'s.

2. The extent to which specific values of r and I_{sd} may or may not be comparable is of no concern insofar as the standard error of Z ". . . depends only upon the size of the sample N and is independent of the value of r."[1] Also Fisher makes the statement that the calculation of the standard error of Z is "practically independent of the value of the correlation in the population from which the sample is drawn."[2]

3. Fisher's Z function is merely a mathematical conversion of values of r into a more normally distributed and usable form. The normality of the distribution of values of r cannot be depended upon, especially when samples are small or correlations high.[3] The normality of the distribution of I_{sd}'s is also subject to question; therefore, in both cases, a conversion of the type Fisher's Z provides is necessary.

---

[1]Garrett, op. cit., p. 199.

[2]Fisher, op. cit., p. 198.

[3]Ibid.

Supply-Demand Efficiency Index for the Free-choice System

The supply-demand efficiency index of the present free-choice system was calculated using the following formula:

$$I_{sd} = 1 - \frac{\Sigma(\left| sD - dS \right|) - xS}{2SD}$$

Where:

I_{sd} = Supply-demand efficiency index
s = Supply of each type of combination teacher
d = Demand for each type of combination teacher
S = Gross supply of all combinations
D = Gross demand for all combinations
x = Number of cases of unspecified need

Data for Supply Under the Free-choice System

Total number of each type of combination art teacher that was graduated from the six state colleges and universities in Kansas over a period from the 1960-61 school year through and including the 1964-65 school year. Only those persons graduated from these institutions who were qualified for certification to teach art and another subject on a secondary level are included. A person is considered qualified who has completed the minimum field and subject requirements set forth in the Certification Handbook of the State Department of Public Instruction. Source of this data was official records on file in the offices of the registrars of these six institutions.

Data for Demand Under the Free-choice System

Total number of persons hired to teach in each combination plus the total sought but not hired for the above mentioned five school years. This data was gathered by means of a questionnaire sent to 539 secondary

school principals in Kansas.[1] Only results from 371 schools, enrolling from 25 to 699 students, were used for statistical purposes in this study. The principals were asked if the school they now administer hired or tried to hire a combination art teacher during that period, and if so, which combination was employed or sought.

Supply-Demand Efficiency Indexes for Approved and Standard Combinations

The supply-demand efficiency indexes of the Approved and Standard combinations were calculated by using the same formula as was used for the calculation of I_{sd} for the free-choice system. Before data could be gathered for this purpose, however, it was necessary to establish the lists of approved and standard combinations.

Selection of Approved and Standard Combinations

For purposes of this study, approved combinations were selected on the basis of those most frequently employed or sought by all Kansas secondary school principals, and those most frequently selected by college students as a second teaching field. The procedure employed in this selection is as follows:

1. All combinations in use were listed in rank order according to the frequency with which they were employed or sought. The source of this information was the questionnaire used to determine demand under the free-choice system.

2. Combinations which were selected by students who graduated from the six schools mentioned above were listed in rank order according to the frequency with which they were selected. Source of this data was records, for the same five year period, in the previously mentioned six colleges and universities.

---

[1]See the appendix for the text of this questionnaire and the letter which accompanied it.

3. Approved combinations were considered as only those which appear in the top 66 2/3% (to the nearest whole number) of both the above mentioned rank order listings.

Standard combinations were considered to be the three most popular (in terms of student selections) of those which appear on the list of approved combinations.

Data for Supply Under Proposed Systems

Total number of persons selecting each standard and each approved combination was tabulated. Questionnaires were sent to a sample of college art majors enrolled, during the spring 1966 semester, in teacher education programs in the six schools mentioned previously. The questionnaire listed approved and standard combinations and asked the student to indicate which, if any, he would select as his minor or second teaching field. It was pointed out that selection from the lists provided would not be mandatory but only highly recommended for purposes of improving job placement opportunities.[1] The above mentioned sample was selected by the following method:

1. An alphabetical list of students currently enrolled in art education programs was secured from each of the six state colleges and universities in Kansas.

2. Each person on each list was assigned a number in numerical order, 1 through N.

3. Twenty per cent of the total number on each list was selected by using a table of random digits. The sample selected in this manner produced 85 cases.

Data for Demand Under Proposed Systems

Total number of secondary school principals selecting each combination from a list of recommended standard and approved combinations was

---

[1]See appendix for the text of this questionnaire.

tabulated. Questionnaires were sent to a structured sample of secondary school principals asking which, if any, of the standard and/or approved combinations they would most likely use in the foreseeable future, assuming a combination art teacher would be needed.[1] This sample was selected by the following method:

1. A list of all Kansas secondary school principals was secured from the Kansas Educational Directory for the 1965-66 school year.

2. Principals of secondary schools smaller than 25 students or larger than 700 students in grades nine through twelve were eliminated.[2]

3. The questionnaire was sent to all the remaining principals resulting in a sample of 371 cases.

Hypotheses Tested

The null hypothesis: I_{sd} (free-choice) $\geqslant$ I_{sd} (approved) will be rejected if the supply-demand efficiency index of the approved system is greater, to a 0.05 level of significance, than that of the free-choice system.

The null hypothesis: I_{sd} (free-choice) $\geqslant$ I_{sd} (standard) will be rejected if the supply-demand efficiency index of the standard system is greater, to a 0.05 level of significance, than that of the free-choice system.

Fisher's Z function will be used in the tests of significance of these differences.[3]

---

[1]See appendix for the text of this questionnaire.

[2]Examination of superintendents' reports for 1964 indicates no Kansas secondary school under 25 enrollment offered art. The same reports show that no secondary school over 700 enrollment employed a combination art teacher.

[3]See page 57 for an analysis of the use of Fisher's Z function.

CHAPTER IV

FINDINGS

Data Gathered

In accordance with the method established for this study data were gathered to determine the extent to which voluntary standardization of art teaching combinations in Kansas secondary education would be effective as a means to improve the supply-demand efficiency in that field. These data are used to produce supply-demand efficiency indexes for the two systems of standardization proposed in this study. These indexes are then compared with the supply-demand efficiency index of the present free-choice system and thus lead to the acceptance or rejection of the hypotheses previously stated.

Basically four types of data are needed.

1. Demand for combination art teachers which has existed under the free-choice system.
2. Supply of combination art teachers which has existed under the free-choice system.
3. Projected demand for combination art teachers which may exist under the systems of approved and standard combinations.
4. Projected supply of combination art teachers which may exist under the systems of approved and standard combinations.

Data for demand which has existed during the period from 1960-61 through 1964-65 under the free-choice system were secured by a questionnaire sent to 371 Kansas secondary school principals. This questionnaire

was completed and returned by 344 (92.7%) of these principals. These data are presented in Table 1 on page 17.

Data for supply of combination art teachers which has existed during the same five year period under the present free-choice system were secured by examining official records at the six state supported colleges and universities in Kansas. In four of these six institutions it was necessary to examine transcripts of all students who had graduated and received a bachelor's degree which would qualify them for certification as a secondary teacher in the State of Kansas. This examination was undertaken to ascertain the extent to which these students were qualified to teach art and another subject or field. In two of the six colleges and universities this examination of transcripts was not necessary since the needed information was available in other forms. In these two institutions students were required to register complete data with placement bureaus on these campuses. These records included a list of other subjects, besides the major, which these people were qualified to teach. These data for supply of combination art teachers are also presented in Table 1 on page 17.

To secure data for the projected demand and supply of combination art teachers under the proposed systems of approved and standard combinations it was first necessary to establish the lists of approved and standard combinations.

Table 2 presents a rank order listing of the various combinations based on the frequency with which they have been established as teaching positions in Kansas secondary schools of all sizes. Table 2 also presents a rank order listing of these combinations based on the frequency with which they have been selected by students who have received undergraduate

degrees in the six state supported colleges and universities.

The following combinations appear in the top 66 2/3% of both rank order listings and thus constitute approved combinations:

Art and English
Art and foreign language
Art and home economics
Art and social science
Art and women's physical education
Art and speech
Art and industrial arts
Art and business
Art and science

TABLE 2

SUPPLY AND DEMAND FOR COMBINATION ART TEACHERS IN KANSAS IN RANK ORDER FOR 1960-61 THRU 1964-65 SCHOOL YEARS

SUPPLY			DEMAND		
Rank	Art and:	Freq.	Rank	Art and:	Freq.
1	Home economics	15	1	English	42
2	English	12	2	Languages	15
3	Social science	10	3	Home economics	14
4	Industrial arts	9	4	Social science	12
5	Languages	6	5	Women's Phys. ed.	7
5	Psychology	6	6	Speech	6
5	Speech	6	7	Business	4
8	Business	4	7	Industrial arts	4
8	Women's phys. ed.	4	7	Library	4
8	Science	4	7	Mathematics	4
11	Library	3	7	Science	4
12	Mathematics	1	12	Music	3
12	Men's phys. ed.	1	13	Men's phys. ed.	2
14	Music	0	14	Psychology	1

The following are the three combinations most frequently selected by students and thus constitute the list of standard combinations:

Art and home economics
Art and English
Art and social science

With the establishment of the lists of approved and standard combinations it was then possible to print and mail the necessary questionnaires. Exact copies of these questionnaires and their cover letters may be found in the appendix. It should be noted that besides questions designed to secure data for the statistical procedures employed in this study other items were included to constitute aids in the evaluation of the result of this study and as a means of checking the usefulness of each returned questionnaire. The following is a detailed examination of both of these questionnaires and the manner in which the responses to each item were used.

Item I on the questionnaire sent to secondary school principals asks: "What is the present enrollment of the secondary school you now administer?" Item II asked: "What grades are included in this enrollment figure?" These two items were included as a means of determining whether or not the returned questionnaire was usable in consideration of the fact that only schools enrolling 25 to 699 students in grades nine through twelve are included in the statistical treatment of data. Secondly, these questions allowed a breakdown of the results by sizes of schools and thus aid in a more detailed analysis of the result of the study.

Item III, A, on the questionnaire presents standard combinations, the most limiting of the two proposed systems, and asks: "If prospective teachers were strongly advised to prepare in one of the following combinations which (if any) would you most likely be able to employ?" Item III, B, lists the approved combinations and is preceeded by the same question. Item III, C, states: "If it is not likely that you could employ

a combination from either of the above lists what other combination would you probably hire?" Space is then provided for the principal to fill in another combination if he so desires.

In an attempt to determine the extent to which current practice might influence the choice of future selections item IV was included which asked: "If you now employ an art teacher what subject(s) besides art does that person teach?"

Of the 371 questionnaires sent to secondary school principals four of these questionnaires were from schools too small to be included in this study, two were returned from schools too large, five were returned with notations that the school had closed or would close at the end of the current school year, and one was returned from a qualified school with only the notation that no high school art was offered. Of the 371 questionnaires sent, 341 (91.9%) were returned and considered usable in this study. Table 3, page 68, is the data derived from the 341 questionnaires.

To secure data on the projected supply of combination art teachers under systems of approved and standard combinations a questionnaire was sent to a structured sample of college art majors currently enrolled in programs which, upon completion, would qualify them as secondary school teachers of art in Kansas. This questionnaire also included items designed to aid in the analysis of the results of this study as well as directly provide the data needed for statistical purposes.

Item I on this questionnaire asked the student to indicate his present classification and sex. This first item was included so that results could be broken down by sex and/or classification if that should prove necessary or desirable.

TABLE 3

RESPONSES ON QUESTIONNAIRES RETURNED BY 341 SECONDARY SCHOOL PRINCIPALS IN KANSAS BY SIZE OF SCHOOL AND TOTAL FOR ALL SIZES

Item	Responses by size of school				Total for all sizes
	99 & below	100-299	300-499	500-699	
No. of ques. tallied	157	146	28	10	341
III, A					
English	41	64	10	5	120
Home econ.	81	33	3	3	120
Social sc.	16	11	4	2	33
Any	31	31	6	1	69
None	10	17	7	1	35
III, B					
English	35	53	12	4	104
Home ec.	72	30	2	3	107
Social sc.	17	8	4	3	32
For. lang.	51	45	5	0	101
Women's P. E.	27	31	2	0	60
Speech	18	30	7	0	55
Ind. arts	13	19	1	1	34
Business	8	8	1	0	17
Science	7	8	0	0	15
Any	14	17	3	1	35
None	3	8	6	1	18
III, C					
Psychology	0	0	0	0	0
Library	2	0	0	0	2
Math.	1	0	0	1	2
Music	6	9	0	0	15
Men's P. E.	0	0	0	0	0
Other	14	9	1	1	25
IV					
No. employing some comb.	27	21	6	1	55
No. who now employ same combination as indicated in III, A, B, or C.	14	10	4	0	28

Item II requested the student to indicate which second field he would be qualified to teach. This item was included in an attempt to determine the extent to which a second field already selected might correspond to the selections made in the lists of approved and standard combinations.

Item III included a list of the three standard combinations which was preceded by the question: "If, for reasons of improving your chances of securing a teaching position, you were strongly advised to select a minor (or second teaching field) from the following fields which (if any) would you select?" Item IV presented the list of approved combinations and was preceded by the same question. Item V states: "If you would not choose from either of the above lists, which subject or field would you select as a minor or second teaching field?" Item VI was included in an attempt to determine whether personal preference or improving the chances of employment constituted the chief basis for the selection of a minor or second teaching field. The exact wording of this questionnaire and the cover letter which accompanied it is included in the appendix of this study.

Of the 85 questionnaires sent to this sample of art majors a total of 76 (89.4%) were returned. Of these 76 questionnaires one proved to be unusable since it was returned blank with the notation that the person had decided not to teach art. The 75 usable returns represent 88.1% of the total number of questionnaires sent. Table 4, page 70, contains the results obtained by this questionnaire.

An examination of Table 4 yields some information not needed for the test of the hypotheses but which will prove useful in the analysis of results. Of the 75 students returning useful questionnaires 12

TABLE 4

RESPONSES ON QUESTIONNAIRES RETURNED BY 75 COLLEGE ART MAJORS BY CLASSIFICATION, SEX, AND TOTAL FOR ALL STUDENTS

Item	Male					Female					Total M & F
	Fr.	So.	Jr.	Sr.	Total	Fr.	So.	Jr.	Sr.	Total	
No. of quest. tallied	2	6	10	11	29	8	11	16	11	46	75
II. No. who now have same comb. as items III, IV, or V.	0	1	3	2	6	2	3	2	2	9	15
III.											
English	0	0	3	1	4	2	2	6	5	15	19
Home ec.	0	0	0	0	0	2	2	1	3	8	8
Social sc.	1	2	1	1	5	2	3	3	2	10	15
None	1	4	6	9	20	3	4	6	2	15	35
IV.											
English	0	0	3	1	4	2	2	4	3	11	15
Home ec.	0	0	0	0	0	1	2	2	3	8	8
Social sc.	0	2	1	1	4	2	3	4	2	11	15
For. lang.	0	1	0	2	3	1	1	1	2	5	8
Women's P. E.	0	0	0	0	0	2	1	0	0	3	3
Speech	1	0	2	2	5	1	0	2	0	3	8
Ind. arts	1	0	1	3	5	0	1	0	1	2	7
Business	0	0	1	0	1	0	1	0	1	2	3
Science	0	0	1	1	2	1	1	1	1	4	6
None	0	3	3	3	9	1	1	6	1	9	18
V.											
Psychology	0	1	1	0	2	0	1	1	0	2	4
Library	0	0	0	0	0	0	1	0	0	1	1
Mathematics	0	0	0	0	0	0	2	0	0	2	2
Music	0	0	0	0	0	1	0	0	0	1	1
Men's P. E.	0	1	1	1	3	0	0	0	0	0	3
Other	0	2	2	0	4	1	0	3	1	5	9
VI. Preference for work	1	2	8	10	21	4	7	9	6	26	47
Improve chance for employment	1	2	1	0	4	1	3	5	2	11	15
Both	0	1	1	0	2	1	1	0	1	3	5
Blank	0	1	0	1	2	2	0	2	2	6	8

indicated no combination would be selected, leaving 63 students who made a choice of a second field. Of these 63 prospective combination art teachers only 15 (23.8%) selected a combination the same as the one in which they were already preparing.

In item VI, 20 (31.7%) of the 75 students responding indicated that improvement in chances for employment was the major criteria for selection or was sufficiently equal to their preferences to warrant marking both answers.

The questionnaire to college students provides no indication of patterns in the selections made by different classes of students. Since the number of students in many of these classes is so small (e.g., only ten freshmen) any conclusion regarding such a trend would be difficult to defend. In like manner little evidence of trends, by reason of sex, can be detected in Table 4 except for the obvious and expected tendencies for men not to enter home economics or women's physical education and for women to reject men's physical education and industrial arts.

One point is worth mention, however, regarding selections made from the group of standard combinations. In spite of the fact the men had, for all practical purposes, only two subjects from which to choose only four (13.8%) of the 29 men chose English as compared with 15 (32.6%) of the women who made the same choice.

Of possible greatest value to school administrators is the list of second fields in rank order of popularity (under the least restrictive system of approved combinations) as indicated by this sample of students. Table 5 presents this list and appears on page 72.

An analysis of the results obtained from the questionnaire to secondary principals also may prove useful. An examination of Table 3 shows

that of the 341 principals responding only 55 now employ a combination art teacher. Of these 55 principals 28 (50.9%) employ the same combination as requested in other portions of the questionnaire. Of these 341 principals 35 (10.3%) chose no standard combination while the balance of 89.7% did make such a selection. From the list of approved combinations 18 (5.3%) did not make a choice while 94.7% did select from this group of combinations.

TABLE 5

SECOND TEACHING FIELDS IN RANK ORDER OF SELECTION BY COLLEGE ART MAJORS UNDER A SYSTEM OF APPROVED COMBINATIONS

Subject	Number of Selections
English	15
Social science	15
Home economics	8
Foreign language	8
Speech	8
Industrial arts	7
Science	6
Psychology	4
Men's physical education	3
Women's physical education	3
Business	3
Mathematics	2
Music	1
Library	1

Some difference is noted in the level of acceptance by principals in the various sizes of schools. Standard combinations were selected by 93.7% of principals in schools enrolling 99 or fewer students. The 300 to 499 size schools indicated the least acceptance with only 75.0% while the 100 to 299 and 500 to 699 sizes show acceptance levels of 11.6% and 10.0% respectively.

The acceptance of approved combinations ranged from a high of 98.1% in the smallest schools to a low of 78.6% in the 300-499 size group. The largest schools remained at 10.0% acceptance while the 100 to 299 group rose to an acceptance level of 94.6%.

Table 3 also indicates 69 principals could use any standard combination as compared with 35 which could apparently use none. In like manner 35 principals indicated a probable ability to employ any combination from the much longer "approved" list while only 18 apparently could use none of these combinations.

Possibly the greatest potential value of the data secured from questionnaires to secondary school principals is much the same as that derived from college students. Table 6 presents a list of second teaching fields in rank order of selection by the principals returning the questionnaire. As was the case in Table 5 this list is based on the projected demand under the less limiting system of approved combinations.

It would be useful to both school administrators and college students alike to establish a list of art combinations in order of their combined popularity. Such a list can be derived from the data gathered in this study.

By standardizing the values of supply and demand for each combination these values can then be added and placed in rank order. Table 7 presents such a listing based on data for approved combinations. This list, as did the preceding ones, includes all combinations not just those considered to be approved.

TABLE 6

SECOND TEACHING FIELDS IN RANK ORDER OF SELECTION BY SECONDARY SCHOOL PRINCIPALS UNDER A SYSTEM OF APPROVED COMBINATIONS

Subject	Number of Selections
Home economics	107
English	104
Foreign language	101
Women's physical education	60
Speech	55
Industrial arts	34
Social science	33
Business	17
Science	15
Mathematics	2
Music	1
Psychology	0
Library	0
Men's physical education	0

TABLE 7

SECOND TEACHING FIELDS IN RANK ORDER OF COMBINED POPULARITY

Subject	s	d	sD	dS	sD+dS
English	15	104	8505	8112	16,617
Home economics	8	107	4536	8346	12,882
Foreign language	8	101	4536	7878	12,414
Social science	15	32	8505	2496	11,001
Speech	8	55	4536	4290	8,826
Women's phys. ed.	3	60	1701	4680	6,381
Industrial arts	6	34	3402	2652	6,054
Science	6	15	3402	1170	4,572
Business	3	17	1701	1326	3,007
Men's physical ed.	3	0	1701	0	1,701
Psychology	2	0	1134	0	1,134
Music	1	1	567	78	645
Library	0	0	0	0	0
Mathematics	0	0	0	0	0

Supply Demand Efficiency Indexes of Approved and Standard Combinations

The preceding part of this chapter presented a report of the data gathered by means of questionnaires and examinations of college and university records. To be useful in statistical treatment these data must now be presented in a form similar to that used in calculating the supply-demand efficiency index of the present free-choice system.

In tallying results of the questionnaires for use in calculating I_{sd} for a system of standard combinations, the following rules were established.

1. All combinations were listed and tallied appropriately since the proposed system is considered to be voluntary and combinations other than standard might be used by schools or selected by students preparing to teach.

2. If the principal indicated all standard combinations as usable further examination of the questionnaire was required since such a response would not necessarily indicate the extent to which combinations other than standard might be equally usable. In such cases all three standard combinations and any approved combinations marked were tallied.

3. If the principal indicated any standard and any approved combination to be usable, tallies were made for all of these combinations and for any other combination indicated in response to question III, C, of the questionnaire.

4. A tally was made in the "any" category only in those cases wherein the principal marked "any" for standard combinations, "any" for approved combinations, and did not enter any alternate choice in question III, C. In these cases it was assumed that a questionnaire so marked indicates complete flexibility in the use of combinations.

In tallying results of the questionnaires for use in calculating I_{sd} for a system of approved combinations, the same rules applied except that entries marked in question III, A, of the questionnaire (pertaining to standard combinations) were ignored due to the fact that these combinations are also included in the list of approved combinations and tallying

them would be unnecessarily repetitious and time consuming.

Tables 8 and 9, on pages 77 and 78, present the data necessary for the calculation of both I_{sd} (standard) and I_{sd} (approved) using the formula:

$$I_{sd} = 1 - \frac{\Sigma(\left| sD - dS \right|) - xS}{2SD}$$

These calculations result in the following:

1. I_{sd} (standard) = .7668
2. I_{sd} (approved) = .7604

Based on the samples employed in this study both of these values are higher than is the I_{sd} of .7509 for the present free-choice system as calculated on page 18.

Test of the Hypotheses

It has been determined that the supply-demand efficiency indexes of the systems of approved and standard combinations are higher than the I_{sd} of the present free-choice system. It now remains to ascertain whether or not these differences are significant.

The null hypotheses to be tested are:

1. I_{sd} (free-choice) $\geqslant$ I_{sd} (standard) α .05
2. I_{sd} (free-choice) $\geqslant$ I_{sd} (approved) α .05

To test these hypotheses a one-tailed test of significance is employed using Fisher's formula for the SE of the difference between two Z coefficients combined with the formula for the critical ratio.[1]

These formulas are:

$$\sigma_D = \sqrt{\frac{1}{N_1 - 3} + \frac{1}{N_2 - 3}}$$

---

[1]Garrett, op. cit., pp. 341-42.

TABLE 8

PROJECTED SUPPLY OF AND DEMAND FOR COMBINATION ART TEACHERS FOR KANSAS SECONDARY SCHOOLS OF VARIOUS SIZES UNDER A SYSTEM OF APPROVED COMBINATIONS

Subject combined with Art	Demand by size of school				Total demand all schools (d)	Supply (s)
	99 & below	100-299	300-499	500-699		
English	36	51	12	5	104	15
Home economics	73	28	2	4	107	8
Social science	18	6	4	4	32	15
Foreign language	52	43	5	1	101	8
Women's phys. ed.	28	29	2	1	60	3
Speech	19	28	7	1	55	8
Industrial arts	14	17	1	2	34	6
Business	9	6	1	1	17	3
Science	8	6	0	1	15	6
Psychology	0	0	0	0	0	2
Library	0	0	0	0	0	0
Mathematics	1	0	0	1	2	0
Music	1	0	0	0	1	1
Men's phys. ed.	0	0	0	0	0	3
Other	0	3	0	1	4	0
None	3	4	6	0	13	12
Any	13	19	3	0	35	--
Total	275	240	43	22	580	90
Less "none"[a]	-3	-4	-6	-0	-13	-12
Adjusted Totals	272	236	37	22	567	78

[a]Some principals marked "none" for standard combinations, "none" for approved combinations and did not enter an alternate choice for combination. It was assumed that in such cases the school would most likely employ no art teacher of any kind or a person to teach art only either of which would not constitute demand for a combination teacher. For this reason the values of "none" were subtracted from the total demand to produce an "adjusted" total for use as D (gross demand) in calculating I_{sd}.

TABLE 9

PROJECTED SUPPLY OF AND DEMAND FOR COMBINATION ART TEACHERS FOR KANSAS SECONDARY SCHOOLS OF VARIOUS SIZES UNDER A SYSTEM OF STANDARD COMBINATIONS

Subject combined with Art	Demand by size of school				Total demand all schools (d)	Supply (s)
	99 & below	100-299	300-499	500-699		
English	62	81	11	6	160	19
Home economics	102	50	4	4	160	8
Social science	37	28	5	3	73	15
Foreign language	18	15	0	1	34	4
Women's physical ed.	10	11	0	1	22	1
Speech	8	5	1	1	15	2
Industrial arts	4	5	0	1	10	5
Business	6	1	0	1	8	2
Science	5	4	0	1	10	4
Psychology	0	0	0	0	0	2
Library	0	0	0	0	0	0
Mathematics	1	0	0	1	2	0
Music	2	3	0	0	5	1
Men's physical ed.	0	0	0	0	0	3
Other	0	3	0	1	4	0
None	3	4	6	0	13	12
Any	10	14	5	0	29	--
Totals	268	224	32	21	545	78
Less "none"[a]	-3	-4	-6	-0	-13	-12
Adjusted totals	265	220	26	21	532	66

[a]Some college art students marked "none" for standard combinations, "none" for approved combinations, did not enter an alternate choice, and did not have a second field in which they would qualify for certification. In these cases it was assumed that such people intend to teach art only and would therefore not be included in the supply of combination art teachers. For this reason the values of "none" were subtracted from the total supply to produce an "adjusted" total for use as S (gross supply) in calculating I_{sd}.

and:

$$CR = \frac{Z_1 - Z_2}{\sigma_p}$$

Combined to produce:

$$CR = \frac{Z_1 - Z_2}{\sqrt{\frac{1}{N_1 - 3} + \frac{1}{N_2 - 3}}}$$

in which:

CR = Critical ratio

Z_1 = Fisher's Z equivalent of I_{sd} for standard combinations (from conversion table)

Z_2 = Fisher's Z equivalent of I_{sd} for free-choice system (from conversion table)

N_1 = Sample size used for I_{sd} (free choice). Number of students who graduated and were qualified as combination art teachers.

N_2 = Sample size used for I_{sd} (standard or approved). Number of students who returned questionnaires on projected supply and qualified as combination art teachers.[1]

On this basis the following decision rules are established:

1. Reject the $H_{o(1)}$ if $CR_{st.} > +1.64$

2. Reject the $H_{o(2)}$ if $CR_{app.} > +1.64$

Test of significance of Difference Between I_{sd} (Standard) and I_{sd} (Free-choice)

The supply-demand efficiency index of the proposed system of standard

---

[1]Two sample sizes were encountered in calculating <u>each</u> I_{sd}; i.e., the sample of students and the sample of school principals. Using the larger of each pair of samples would increase the probability of a significant difference existing between the I_{sd}'s; therefore, the smaller N's are used as a precaution against an unwarranted rejection of the null hypotheses. The two variables take away two degrees of freedom and the transformation into Fisher's Z adds another restriction; thus, 3 is subtracted from each N.

combinations was calculated and is given on page 76. This calculation resulted in an I_{sd} of .7668. The I_{sd} for the present free-choice system was found to be .7509 and was given on page 18.

The test of significance of the difference between these two values is as follows:

In the formula:

$$CR = \frac{Z_1 - Z_2}{\sqrt{\frac{1}{N_1-3} + \frac{1}{N_2-3}}}$$

Z_1 = 1.0136 (Fisher's equivalent of .7668)

Z_2 = .9727 (Fisher's equivalent of .7509)

N_1 = 81

N_2 = 63

In this calculation CR = .2384

According to the decision rule this CR for the system of standard combinations (.2384) is not greater than +1.64; therefore, the evidence indicates a failure to reject $H_{o(1)}$.

Test of Significance of Difference Between
I_{sd} (Approved) and I_{sd} (Free-choice)

The supply-demand efficiency index of the proposed system of approved combinations was calculated and is given on page 76. This calculation resulted in an I_{sd} of .7604.

Since the difference between I_{sd} (free-choice) and I_{sd} (standard) was indicated as not significant no purpose would be served in repeating these calculations for the lesser difference between I_{sd} (free-choice) and I_{sd} (approved). Therefore, according to the established decision rule, the CR of the system of approved combinations is not greater than

+1.64 and the evidence indicates a failure to reject $H_{o(2)}$ also.

The failure to reject the null hypotheses indicates that neither of the proposed systems of standardization is likely to produce a greater supply-demand efficiency in Kansas art education. An examination of the data and the results of their statistical treatment clearly indicates that administrators and college students find standardization acceptable to a relatively high degree. Proportionately more principals than students made selections from the lists of approved and standard combinations suggesting a greater degree of acceptance on the part of the former group. The rather large number of school administrators indicating any combination could be used is further indication of a high degree of ability as well as willingness to adjust to the nature of the supply.

In spite of the apparent acceptability of standardization a significant improvement in supply-demand efficiency did not result. The reasons for this outcome are found in the assumptions which underlie the study and the simple laws of probability. It was assumed that both systems of standardization were voluntary and that school administrators and college students were still free to select the combinations they desired. This being the case, many combinations were chosen which did not appear in the approved or standard lists and therefore tended to minimize the extent to which supply and demand distributions matched.

It must be recognized, however, that the voluntary nature of the proposed systems is not the only factor which could have produced a lack of improvement in efficiency. Even if all students and administrators had selected an approved or standard combination the efficiency would not necessarily have been improved. Greater efficiency is a product of the

extent to which the distributions of choices correspond whether or not these corresponding choices are made from lists of standardized combinations. The existence of the lists served only to encourage selections from a narrower range of possibilities and thereby increase the probability of corresponding choices being made.

A very narrow range of choices was recommended by the list of three standard combinations, a somewhat broader range provided by the nine approved combinations, and the present free-choice system incorporates fourteen specific combinations. The differences in I_{sd}'s of the three systems did not prove significant thus leading to the conclusion that standardization of art teaching combinations is not sufficiently acceptable to improve supply-demand efficiency in Kansas.

CHAPTER V

SUMMARY AND CONCLUSIONS

Summary of the Study

Many small secondary schools in Kansas do not include art in their curricula due to their inability to find a person qualified to teach art and another subject. This is caused by a general shortage of art teachers but the problem is compounded by an inefficient use of the available supply of qualified people. In many instances school administrators cannot find a teacher to fill an established combination position while, at the same time, persons qualified in other combinations are available for employment. In like manner, newly certified combination art teachers often see positions open and unfilled in combinations other than the one in which they have prepared. This mis-match between supply and demand, referred to herein as a low supply-demand efficiency, was found to exist in Kansas and has been a matter of concern in other fields and other locations for many years.

Standardization of teaching combinations has been tried as a means to achieve a closer relationship between supply and demand distributions. Although standardization exists in many combination fields little evidence was found of the inclusion of art in these standardization efforts.

Strict control over the combinations in which future art teachers

prepare would possibly be effective but would be an unacceptable means to achieve standardization. Any system which denies freedom of choice in occupational selection is contrary to democratic principles and has been found to be unacceptable on certain practical grounds as well. Under these circumstances standardization not only must be voluntary but must actually improve supply-demand efficiency lest it be a misleading advisement tool in colleges and an invalid criteria for secondary school program planning. This study was designed to determine whether or not some system of voluntary standardization of art combinations would be sufficiently acceptable to college students and the school administrators of Kansas to actually improve supply-demand efficiency. As a secondary purpose this work provides needed but previously unavailable information about supply and demand of combination art teachers in Kansas.

The method employed to achieve these purposes first included the development of a formula specifically needed for this study. Although this formula may have other applications its use in this work produces a "supply-demand efficiency index" (I_{sd}) which is a measure of the extent to which the distribution of types of combination art teachers produced matches the distribution of types of combination art teachers needed by the secondary schools. This formula was used to measure supply-demand efficiency as it has existed over a five year period in Kansas. Two systems of standardization were developed, and through the use of questionnaires, offered to samples of college art students and school administrators. Results derived from these questionnaires formed projected distributions of supply and demand under each of the two systems of standardization.

Measures of supply-demand efficiency were made for each proposed system of standardization and compared with the I_{sd} of the previous five years. Although the efficiency of both proposed systems proved somewhat higher than that which has existed, the differences did not prove significant.

Analysis of Results

The examination of the results of this study is divided into two major parts. The first portion deals with the question of standardization--whether or not such a system should be adopted and why and the relationship of these findings to previous studies.

The second portion of this analysis of results is concerned with the information on supply-demand conditions which was gathered. The meaning of these data is supplied along with suggestions for their effective use.

The evidence indicated no significant difference between supply-demand efficiency under the proposed systems of standardization and the level of efficiency which now exists. Reasons why this is the case are speculative but nevertheless supportable by logic as well as widely held beliefs regarding human behavior.

It is obvious that greater efficiency can be achieved only if both school administrators and college students choose essentially the same combinations. The level of acceptance of standardization proved high among the school administrators; 89.7% choosing a standard combination and 94.7% selecting an approved combination. If college students had indicated equal receptivity to the systems a significantly improved efficiency might have resulted, however, this was not the case. Only 53.4%

of the college students chose a standard combination while 76.0% selected an approved combination. The latter figure, though indicating a substantial level of acceptance, is the less important of the two since, with nine combinations in the approved list, even 100% acceptance would not necessarily produce greater efficiency. Assuming an equal level of acceptance an improved efficiency is more likely to occur in a system which includes three possible choices than in a system allowing nine choices.

Although improved efficiency is more likely to occur in the more restrictive system of standard combinations it was found to be the least acceptable of the two. It is logical to assume that the reason for this is found in its limited range of choices which do not sufficiently cater to the varied interests of the individuals making selections.

The conditions under which a system of standardized art combinations should be adopted were stated as (1) the system must be voluntary and not restrict freedom of choice, and (2) the system must actually improve supply-demand efficiency. Since the latter stipulation apparently cannot be met it must be concluded that standardization of art teaching combinations should not be adopted in Kansas at this time.

The evidence derived from this study is related to previous works in two ways: Support is provided for certain previous findings and beliefs and questions are raised about other activities and attitudes.

The literature in the fields of education and vocational guidance establishes the importance of recognizing individual needs and freedom of choice. Support for these beliefs and findings is provided by the extent to which students rejected one or both of the proposed systems of voluntary standardization, especially the more restrictive "standard" system.

A more clear expression of this support is provided by the fact that 47 (62.6%) of the 75 college students indicated a preference for the type of work to be the major criteria in selecting a second teaching field.

The literature in the field establishes the importance of vocational information and the fact that such information tends to influence occupational choices. Further support is given to these concepts by the evidence derived from this study. The questionnaires returned by college students indicate only 23.8% of these students would select, under advisement, the same combination in which they are now preparing. Some of the remaining 76.2% of the students choosing a different combination may have done so because of a dissatisfaction with their present second field; however, it is reasonable to assume that many of them were influenced by being advised to choose a standard or approved combination. The mere existence of a system of standardization would suggest, to the student, that certain combinations are in greater demand than those not included in the system. In so doing the system of standardization constitutes one form of vocational information which apparently would affect, to some extent, the choices made by many students.

The results of this study raise some questions regarding the validity of certain practices and concepts. There is a tendency to assume that supply should be adjusted to fit demand. This attitude prevails, and with considerable justification, in business, industry, and education. Previously cited attempts to control teaching combinations and the undercurrent of thought in the literature attest to the prevalence of this notion in the field of education. Valid as this concept may be in some situations its validity in relation to combination teachers is questionable.

Three points should be considered in this regard. (1) As was noted before school principals were considerably more receptive to the proposed systems of standardization than were the students. This fact, coupled with the number of administrators indicating that "any" combination could be used, suggests a relatively high degree of willingness and ability to adjust to the supply of combination art teachers. (2) The college student commits himself to preparation in a combination of subjects generally from two to four years before he is ready for employment. This being the case the nature of the supply of new teachers for a given year is established long before the nature of the demand for these combinations is determined. (3) The staffing function in secondary schools, though unquestionably a complex and essential consideration, is only a means to an end and not an end in itself. A system which expedites staffing but results in disinterested or inept teachers defeats the objectives of the staffing function. In short, further complication of the staffing function is a price worth paying if it results in superior teaching which is more apt to occur if teachers are prepared in fields of interest to them.

In consideration of these three points--the apparent flexibility of demand, the time element in producing the supply, and the importance of teacher interest--it would seem that demand should be adjusted to fit supply rather than supply being subordinated to demand. Since the evidence uncovered points only to fulfilling demand and cites no other educationally valid criteria for the establishment of combinations, past and possible future efforts to control the nature of the supply of combinations are of questionable merit.

Since the formal adoption of systems of standardization of art teaching combinations has been found to be unacceptable as a means of

improving supply-demand efficiency there remains only adequate information to contribute to a closer match between supply and demand distributions. Knowledge of combinations most in demand will influence student choices and knowledge of the types of combination teachers in preparation can assist the school administrator in adjusting, wherever possible, to this relatively unchangeable new supply.

The secondary purpose of this study was to gather information on the nature of the supply of and demand for combination art teachers which has existed and may, in the future, exist in Kansas. No attempt was made to compile data regarding age, sex, specific qualifications, or the many other characteristics of the supply of teachers. In like manner there was no attempt to assess the demand in such terms as size of community, class of school, salary scale, or the like. The sole concern of this information gathering activity was to provide data necessary for this study, assist school administrators in the establishment of combination positions more likely to be filled, and aid the college student in becoming aware of the chances for employment in various combination fields. The information to serve the latter two purposes can now be briefly summarized.

On the assumption that college students' interest patterns will remain relatively unchanged the school administrator may expect the new combination art teacher most likely prepared to teach English and relatively large numbers will have selected home economics or social science as their second teaching field. On the other hand the administrator who needs a teacher for art and music, art and mathematics, or an art teacher to also serve as librarian may expect considerable difficulty in filling these positions. The likelihood of various other combinations being

available is less easily predicted but collectively range from fair to poor. A comparison of supply data from Table 1 with rank order of popularity under a system of approved combinations as indicated by Table 5 shows some changes in relative popularity for many combinations. It must be remembered that Table 1 represents choices actually made under conditions of practically no information concerning placement opportunities. Table 5 data therefore may be more representative of student choices under circumstances wherein they are better informed of demand conditions. If this assumption can be made, foreign language and speech may be added to the list of second fields which will be popular among college students.

Information on the nature of the demand for combination art teachers may also prove useful to college students and their advisors. Data for both past demand (Table 1) and for projected demand under a system of approved combinations (Table 6) are in agreement as to the relative frequency of need for some combinations. English, foreign language, and home economics are the second fields most in demand and art teachers qualified in one of these fields should encounter little difficulty in securing a position. A high level of agreement between these two sets of data is also found for some of the combination subjects least in demand. College students preparing in art and psychology, art and music, or art and men's physical education may encounter some difficulty in securing positions. Of the subjects remaining, social science, women's physical education, and speech appear in the top halves of both rank order lists. Mathematics, business, and science, on the other hand, appear toward the bottom of both such lists. College students may consider the chances of employment in these combinations to be fairly good or rather poor as the case may be. The only subjects exhibiting marked changes in relative popularity

are industrial arts and library. The latter gained in popularity under the proposed system of standardization while art and library combination appears at the bottom of the rank order listing in Table 6.

The above information cannot be looked upon as in infallible prediction of future conditions. A multitude of other factors, not within the scope of this study, may influence supply and demand in general and the individual case of supply or demand. This study has shown that many prospective combination art teachers do consider placement opportunities in making a selection of a second field and the school administrator certainly will, wherever possible, consider the potential supply in relation to his programming activities. It is for these people that the general trends indicated in this data can be of significant value.

Recommendations

This study focuses attention on the need for action as well as additional research. The following recommendations are made relative to this need:

1. This study has established that information on supply and demand conditions in combination art teaching is needed and has not been available in Kansas. It is recommended that the information presented in this work be made available to secondary school administrators and advisors of college students. In the belief that this is a legitimate responsibility of the office of State Art Consultant a copy of this information along with this recommendation is to be forwarded to that office.

   It is further recommended that the office of State Art Consultant compile and disseminate supply-demand information on a regular, periodic basis. This information should include data concerning potential supply (the number of students in various stages of preparation for teaching) as well as current supply-demand information.

2. In consideration of the importance of free-choice in occupational selection, it is recommended that teacher education programs continue to allow complete freedom in the selection of

teaching combinations. Any specific combination or groups of combinations which are, or may be found to be more desirable for valid reason may be recommended but should not be required to the exclusion of others.

3. It is recommended that school administrators make every effort to establish the combination art teaching positions most popular to the teachers. In this way the administrator will improve his chances of securing a combination art teacher and that teacher more likely will be interested and competent in that combination of subjects.

4. This study provides evidence that voluntary standardization of art teaching combinations would not be an effective way to improve supply-demand efficiency in Kansas art education at this time. It is therefore recommended that formal programs of standardization of art combinations not be established in colleges and universities at this time. It must be recognized that, as students and school administrators become better informed of supply-demand conditions, a degree of standardization may come about by voluntary or informal means. This is a natural process and should not be discouraged; however, neither should it be artificially induced or exaggerated by formally established programs of study in certain combinations or by restrictions imposed on the selection of other combinations.

Students preparing for careers in secondary art teaching must be allowed complete freedom in selecting teaching combinations. Their choices should be made in an atmosphere of awareness of supply-demand conditions, but also with freedom from misleading systems of standardization. If the above recommendations are followed a significant improvement may be realized in the supply-demand situation in Kansas art education.

BIBLIOGRAPHY

Articles and Periodicals

American Personnel and Guidance Association. "A Statement of Policy Concerning the Nation's Human Resources Problem," Personnel and Guidance Journal, XXXVI, No. 7 (March, 1958), 454.

Bartels, Martin H. "Index of Teacher Demand Through 1963," The Educational Forum, XXIX, No. 1 (November, 1964), 65-69.

Bohrson, Ralph, and Pigott, L.D. "How Can Better Staff Utilization Help Improve Small High Schools?" National Association of Secondary School Principals Bulletin, XLIV, No. 255 (April, 1960), 134-38.

Charters, W. W. (ed.). "The Supply of Teachers and the Demand," Educational Research Bulletin, IX (November 5, 1930), 437-73.

Clark, Leonard H., Klein, Raymond L., and Burks, John B. "Recent Developments Affecting the Secondary School Curriculum," School and Society, XCII, No. 2252 (December 26, 1964), 402-13.

Cyr, Frank W. "Enriching the Curriculum of the Small Secondary School," National Catholic Education Association Bulletin, LIX, No. 1 (August, 1962), 317-23.

Hagstrom, Ellis. "Fit Teacher to Job or Job to Teacher?" Overview, August, 1961, pp. 26-27.

Hubbard, Guy. "Art in the Schools--No Fork in the Road," Art Education, XVII, No. 9 (December, 1964), 10-12.

Maul, Ray C. "Teacher Supply and Demand in Art Education," Art Education, XVII, No. 9 (December, 1964), 24-27.

Miller, Delmas F. "The Arts in the Comprehensive Secondary School," The Bulletin of the National Association of Secondary School Principals, XLVI, No. 275 (September, 1962), 1-19.

National Education Association Research Division. "Art Instruction in Public Schools," NEA Research Bulletin, XLI, No. 3 (October, 1963), 90-93.

Oliver, Chas. F. "Improving the Curriculum of the Small High School," The Bulletin of the National Association of Secondary School Principals, XLVII, No. 280 (February, 1963), 95-99.

Roberts, Olive, et. al. "New Directions in Secondary School Art," Art Education, XVII, No. 5 (May, 1964), 18-23.

Tracey, Wm. R. "Needed: A Career Management System for Teachers," The American School Board Journal, CIL, No. 4 (October, 1964), 19-21.

Travis, Herman and Stein, Robert. "Employment Trends in 1960," Occupational Outlook Quarterly, V, No. 2 (May, 1961), 3.

Books

Bailey, Francis L. A Planned Supply of Teachers for Vermont. New York: Bureau of Publications, Columbia University, 1939.

Burrup, Percy E. Modern High School Administration. New York: Harper and Brothers, Publishers, 1962.

Chamberlain, Leo M. and Kindred, Leslie W. The Teacher and School Organization. New York: Prentice Hall Inc., 1949.

Chambers, M. M. Chance and Choice in Higher Education. Danville, Ill.: The Interstate Printers and Publishers, Inc., 1962.

Commission on Colleges and Universities. Report of the Committee on Postwar Education. Chicago: North Central Association of Colleges and Secondary Schools, 1946.

Cooke, Dennis H. Administering the Teaching Personnel. Chicago: Benjamin H. Sanborn and Co., 1939.

Cooper, Russell M. Better Schools--Better Teachers. New York: The MacMillan Company, 1944.

Davis, Hazel. Music and Art in the Public Schools. Research Monograph 1963-M3. Washington: National Education Association, 1963.

Deyoe, George P. Certain Trends in Curriculum Practices and Policies in State Normal Schools and Teachers Colleges. New York: Bureau of Publications, Teachers College, Columbia University, 1934.

Douglas, Harl R. Modern Administration of Secondary Schools. 2nd ed. Boston: Ginn and Co., 1963.

Dubois, Edward N. Essential Methods in Business Statistics. New York: McGraw-Hill Book Company, Inc., 1964.

Fisher, R. A. Statistical Methods for Research Workers. 11th ed., revised. New York: Hafner Publishing Company, 1950.

Flippo, Edwin B. Principles of Personnel Management. New York: McGraw-Hill Book Company, Inc., 1961.

Garrett, Henry. Statistics in Psychology and Education. 5th ed. New York: Longmans, Green and Co., 1958.

Hanna, Paul R. (ed.). Education: An Instrument of National Goals. New York: McGraw-Hill Book Co., 1962.

Hastie, Reid W. (ed.). Art Education. Sixty-fourth Yearbook of the National Society for the Study of Education, Part II. Chicago: University of Chicago Press, 1965.

Koos, Leonard V., et. al. Administering the Secondary School. New York: American Book Co., 1940.

Maul, Ray C. Teacher Supply and Demand in Public Schools, 1965. Washington: National Education Association, 1965.

McConnell, T. R. A General Pattern for American Public Higher Education. New York: McGraw-Hill Book Co., 1962.

McGlothlin, William J. Patterns of Professional Education. New York: G. P. Putnam's Sons, 1960.

Monroe, Walter S. Teaching-Learning Theory and Teacher Education. Urbana, Ill.: University of Illinois Press, 1952.

Munro, Thomas. The Creative Arts in American Education--The Interrelation of the Arts in Secondary Education. Cambridge: Harvard University Press, 1960.

O'Toole, A. L. Elementary Practical Statistics. New York: The MacMillan Company, 1960.

Peters, Herman J. and Hansen, James C. (ed.). Vocational Guidance and Career Development. New York: The MacMillan Company, 1966.

Perry, Kenneth Frederick. An Experiment with a Diversified Art Program. New York: Bureau of Publications, Teachers College, Columbia University, 1943.

Riggleman, John R. and Frisbee, Ira N. Business Statistics. 3rd. ed. New York: McGraw-Hill Book Company, Inc., 1961.

Rudolph, Frederick. The American College and University. New York: Alfred A. Knopf, 1962.

Salley, Ruth E. Some Factors Affecting the Supply of and Demand for Pre-School Teachers in New York City. New York: Bureau of Publications, Columbia University, 1943.

Stockton, John R. Introduction to Business and Economic Statistics. 3rd. ed. Cincinnati: South-Western Publishing Co., 1966.

Tate, Merle W. and Clelland, Richard C. Nonparametric and Shortcut Statistics. Danville, Ill.: Interstate Printers and Publishers, Inc., 1957.

Weeks, Helen Foss. Factors Influencing the Choice of Courses by Students in Certain Liberal Arts Colleges. New York: Bureau of Publications, Teachers College, Columbia University, 1931.

Public Documents

State Department of Public Instruction. Kansas Educational Directory, 1965-66. Topeka: State Printer, 1966.

State of Kansas. Office of the Superintendent of Public Instruction. Superintendents Annual Reports: 1964.

U. S. Congress. National Foundation on the Arts and the Humanities Act of 1965. Public Law 89-209, 1965.

Unpublished Materials

Hickman, Ronald. "A Study of High School Art Offerings in the State of Kansas." Unpublished research. Art Department, Kansas State Teachers College, Emporia, 1963. (Mimeographed.)

APPENDIX

Text of Questionnaires and Accompanying Letters

Text of Letter Sent to Secondary School Principals with Questionnaire to Measure Demand under the Free-Choice System

Dear Sir:

Research is being conducted on the demand for art teachers in Kansas secondary schools. A few moments of your time would be of great help in completing this study.

Enclosed you will find a stamped, self-addressed card with four questions for your consideration. Would you please answer the questions and place the card in the mail at your earliest convenience.

Your cooperation in this matter will be deeply appreciated. Thank you.

Sincerely,

(signature)

J. Warren Brinkman
Associate Professor of Art

Text of Return Card Sent with Above Letter

For the five school years prior to the current year:

1. Did the secondary school which you now administer hire a teacher of art? Yes ____ No ____

2. What subject/s besides art does that person teach?

_____

3. In that same period did your school attempt, <u>without success</u>, to find a qualified art teacher?
Yes ____ No ____

4. If "Yes" what other subject/s besides art would that person have been expected to teach? _____

_____

Thank you.

Text of Letter sent to Sample of College Art Majors with Questionnaire on Following Page

Dear Art Major:

Research is being conducted pertaining to the supply and demand for art teachers in Kansas. In connection with this research it is necessary to measure the reactions of college students to certain advising procedures. You have been selected from a large number of students to receive the enclosed questionnaire and thereby assist in the completion of this study.

Please answer each question and return the form to me in the enclosed, stamped, self-addressed envelope. Thank you for your assistance.

Sincerely,

(signature)

J. Warren Brinkman
Associate Professor of Art
Kansas State Teachers College
Emporia, Kansas

Questionnaire

Projected Supply of Combination Art Teachers

Please answer each question to the best of your ability and return in the enclosed, stamped, self-addressed envelope to: Art Department, The Kansas State Teachers College, Emporia, Kansas.

I. What was your classification last spring semester?
Fr__ So__ Jr__ Sr__. Sex? M__ F__.

II. What is the minor or second field in which you will be qualified to teach (if any)? _____

III. If, for reasons of improving your chances of securing a teaching position, you were strongly advised to select a minor (or second teaching field) from the following fields which (if any) would you select?

English . . . . . _____
Social science . . . . _____
Home economics . . . . _____
None of these . . . . . _____

IV. If, for reasons of improving your chances of securing a teaching position, you were strongly advised to select a minor (or second teaching field) from the following fields which (if any) would you select?

English . . . . . _____
Foreign Language . . . _____
Home economics . . . . _____
Social science . . . . _____
Women's phys. ed. . . . _____
Speech . . . . . _____
Industrial arts . . . . _____
Business . . . . . _____
Science . . . . . _____
None of these . . . . . _____

V. If you would not choose from either of the above lists, what subject or field would you select as a minor or second teaching field?
_____

VI. What do you consider the most important basis for your selection of a minor or second teaching field?

Personal preference for the type of work . . . . . _____

Improving your chances for employment . . . . . _____

Other (specify) . . . . . _____
_____

Thank you for your assistance in completing this study.

Text of Letter Sent to Secondary School Principals
with Questionnaire on Following Page

Dear Sir:

Earlier this year you received a questionnaire pertaining to research on the demand for art teachers in the secondary schools of Kansas. I wish to thank you for your prompt and thoughtful response to that inquiry.

This supply-demand study is now in its final stages and it is necessary to again ask you for a few moments of your time. Would you please examine the enclosed questionnaire, answer the questions which may apply, and return in the enclosed, stamped, self-addressed envelope. If you would be interested in receiving a summary of the study when it is completed, please check the appropriate box at the end of the questionnaire and add your name and mailing address.

There is every indication that this study may help to solve some of the staffing problems encountered in the small and medium size secondary schools. For this reason your assistance in this matter is of the greatest importance and will be deeply appreciated.

Sincerely,

(signature)

J. Warren Brinkman
Associate Professor of Art
Kansas State Teachers College
Emporia, Kansas

Questionnaire

Projected Demand for Combination Art Teachers

Please answer each question to the best of your ability and return in the enclosed, stamped, self-addressed envelope to: Art Department, The Kansas State Teachers College, Emporia, Kansas.

I. What is the present enrollment of the secondary school you now administer? _____

II. What grades are included in this enrollment figure? _____

III. Assume that, in the foreseeable future, the secondary school you now administer would seek to hire a teacher of art. If that person would be expected to teach another subject (besides art) please answer the following questions:

A. If prospective teachers were strongly advised to prepare in one of the following combinations which would you most likely be able to employ?

Art and English . . . . . _____
Art and home economics . . _____
Art and social science . . _____
ANY of these . . . . . _____
NONE of these . . . . . _____

B. If prospective teachers were strongly advised to prepare in one of the following combinations which would you most likely be able to employ?

Art and English . . . . . _____
Art and foreign language. . _____
Art and home economics . . _____
Art and social science . . _____
Art and women's phys. ed. . _____
Art and speech . . . . . _____
Art and industrial arts . . _____
Art and business . . . . . _____
Art and science . . . . . _____
ANY of these . . . . . _____
NONE of these . . . . . _____

C. If it is not likely that you could employ a combination from either of the above lists, what other combination would you probably hire? Art and _____

IV. If you now employ an art teacher, what subject(s) besides art does that person teach? _____

Thank you for your valuable assistance in completing this research study. If you wish to receive a summary of the completed study, please add your name and mailing address.