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THE SCHOOL DAY, THE SCHOOL YEAR AND WORK LOAD OF TEACHERS, A STUDY OF THE EDUCATIONAL IMPLICATIONS.

NEW YORK STATE TEACHERS ASSN., ALBANY

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THE ASSOCIATION FOUND THAT RESEARCH ON CLASS SIZE IS FREQUENTLY MISINTERPRETED EVEN BY EDUCATORS. IN ORDER TO CLARIFY TERMS, THIS STUDY USES THESE DEFINITIONS--CLASS SIZE IS THE NUMBER OF STUDENTS ASSIGNED TO A TEACHER FOR A PERIOD OF INSTRUCTION, CLASS LOAD IS THE NUMBER OF PUPILS FOR WHOM TEACHERS ARE RESPONSIBLE DAILY WHERE THE TEACHER IS ASSIGNED MORE THAN ONE CLASS EACH DAY, AND STAFFING RATIO REPRESENTS THE RATIO OF PROFESSIONAL STAFF (SUPERVISORS, ADMINISTRATORS, TEACHERS AND PROFESSIONAL PERSONNEL) TO PUPILS. APPROXIMATELY 80 PERCENT OF THE RESEARCH REVIEWED BY THIS STUDY GROUP EITHER SUBSTANTIATED THE VALUE OF SMALL CLASSES OR WAS INCONCLUSIVE. WHEN PRINCIPLES OF RESEARCH METHODOLOGY WERE APPLIED TO VARIABLES AFFECTING LEARNING, FIVE OUT OF EVERY SIX STUDIES TENDED TO FAVOR SMALL CLASSES. SINCE RESEARCH HAS NOT BEEN CONCLUSIVE, TEACHER JUDGMENT AND EXPERIENCE SHOULD BE GIVEN SERIOUS CONSIDERATION IN DETERMINATIONS OF CLASS SIZE. TEACHERS HAVE LEARNED THAT LARGE CLASSES FORCE DEVELOPMENT OF A GROUP NORM EXPECTANCY, WHEREAS SMALLER CLASSES ALLOW THE TEACHER TO BE INNOVATIVE, TO GIVE MORE ATTENTION TO INDIVIDUAL DIFFERENCES, AND TO EMPLOY BETTER TEACHING PRACTICES. ALTHOUGH RECOGNIZING THE DIFFICULTIES INVOLVED IN DETERMINING CLASS SIZE AND GROUPING POLICY, THE OPTIMUM CLASS SIZE OF 25 IS THE AVERAGE OF THOSE CLASS SIZES WHERE CONSIDERATION HAS BEEN GIVEN TO PURPOSE, GROUPING, EDUCATIONAL, PHILOSOPHY, PUPIL CHARACTERISTICS, AND DIFFERENT KINDS OF LEARNING. (BR)

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THE SCHOOL DAY, THE SCHOOL YEAR

and

WORK LOAD OF TEACHERS

A Study of the Educational Implications

U. S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
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Educational Policies Committee
New York State Teachers Association
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CLASS SIZE AND CLASS LOAD

Class size or class load policy is one of the two most crucial elements affecting the quality of public education. The other is standards on teacher qualifications. Good teachers cannot produce best results in large classes. Small classes cannot produce best results without good teachers. Both factors must be considered together in policy-making.

Both of these vital elements may be threatened during periods of expanding enrollments and rising costs. Unless the public is aware of the close interrelations among teacher competence, class size and educational quality, it may not be willing to pay the price and quality will deteriorate.

Attention to individual differences and the broadening of school objectives have caused school systems to employ additional personnel who do not necessarily teach. These positions are an essential part of the modern school program. Unfortunately, the public often classifies such positions with classroom teachers and confuses staffing ratio with class size in discussing policy. It is necessary therefore to define these terms.

Definitions

1. Class size is the number of students assigned to a teacher for a period of instruction. In elementary schools, where one teacher directs all learning, it is the number of pupils for whom a teacher is responsible daily. In secondary schools or other schools in which teachers are responsible for instruction in a particular subject, it is the number of pupils for whom a teacher is responsible during a single period.

2. Class load is the number of pupils for whom teachers are responsible daily where the teacher is assigned more than one class each day.

3. Staffing ratio represents the ratio of professional staff (supervisors, administrators, teachers and professional personnel) to pupils. It should be understood that a school system may have a large class size and yet have a relatively low ratio of pupils to staff positions.

Current Practice

Although the ratio of staff to pupils has increased from 47 to about 50 per thousand pupils in the State during the past decade, there is no evidence that the average

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class size in the elementary schools has decreased significantly in recent years. In 1952-53 the average elementary school class size in the State was about 29. In 1956-57 it was still close to 29 - about 30 in New York City and about 28 in the remainder of the State. We find that the average outside of New York City for 1958-59 is still about 28 pupils per class (Table 3).

The averages do not reveal the wide difference which exist in the size of elementary school classes. About a third of the classes have fewer than 26 pupils, but over a third have 30 or more pupils, as shown in Table 4.

The average elementary class size is somewhat higher in the New York City Metropolitan Area than it is for the rest of the State (Table 4). The Metropolitan Area has a high proportion of classes with 30 or more and it has the lowest percentage of classes under 26. In all areas at least a third of the classes have 30 or more pupils, but the problem appears to be more acute in the rapidly growing suburbs.

There is a positive relationship between the size of elementary classes and the amount of nervous strain reported by the teachers. The teachers who feel little or no nervous strain have an average class size of about 26. Nearly half have classes under that figure. In contrast, the teachers who feel the greatest amount of nervous strain have an average class size of over 29. Nearly half of them have classes of 30 or more pupils.

Elementary teachers who express the most dissatisfaction with teaching also tend to have larger classes -- over 30 pupils on the average, as compared to about 27 for the teachers who are most satisfied.

The typical secondary teacher meets five or more classes daily averaging 22 pupils each. The range is from fewer than three classes to seven or more. About 18 percent have fewer than five and over 22 percent have more than five classes.

Over half of the secondary teachers have a daily class load of 100 to 150 pupils with a central tendency of about 122. At one extreme are the over 26 percent who have fewer than 100 pupils and at the other the over 18 percent who have over 150 pupils (See Table 5). The heaviest average class load is found in the upstate cities and villages - 133 pupils. Over a quarter of these teachers have 150 or more pupils.

Average class load in high schools varies according to subject matter fields, although teachers of the same subject have very different loads. Among academic teachers those in history and related subjects have the highest average (135 pupils), followed by science (129), mathematics (126) and combinations of subjects (122). English teachers have an average pupil load of about 120. The average for other subjects is about 101 (See Table 6). As shown in the table, the relative class loads of high school teachers have not changed materially since 1956-57.

The foregoing relate only to class load. In the high school, a teacher also may be responsible for one or more groups engaged in study or other types of activities Differences in class load must be related to total teaching load in arriving at conclusions.

Secondary teachers who feel considerable nervous strain have a heavy class load, about 136 pupils daily. Those teachers who feel little or no strain have an average of about 115 pupils daily. Secondary teachers who are most dissatisfied with their jobs also have a higher than average class load - nearly 131 pupils daily.

Review of Research

We reviewed the research on class size and found that it frequently is misinterpreted even by educators. Most studies (at least 80 percent of them) either substantiate the value of small classes or are inconclusive on the issue of class size. Indeed, if the studies are classified in terms of research design, those which use the most defined techniques of measurement and exercise the most control over variables affecting learning tend to favor small classes in five out of every six cases. Research which controls the variable of teacher competence indicates that with small classes good teachers give more attention to individual differences, tend to employ better teaching practices and show more innovation or inventiveness in teaching.

Those who urge larger classes in public schools frequently cite the statement in the Encyclopedia of Educational Research that the burden of proof is upon those who advocate smaller classes. We find this statement not in accord with the findings of most research studies nor is it in accord with other statements of the same author./1 Furthermore, proof cannot be expected from research for reasons given below.

We find that research completed to date does not constitute conclusive proof, either for or against small classes. The best that can be said of it is that most such studies tend to substantiate the judgment of teachers. Those who are guided by the small percentage of studies which question the value of small classes particularly fail to recognize the limitations of all research to date in control of variables, assumptions, sampling, measurements and interpretations of measurement.

Variables. There are many variables other than competency of the teacher, the size of the class or the adequacy of the school program which affect what children learn: native ability, home background, health and energy, preschool experience, previous teachers, emotional life, out-of-school experiences and many others. No research could or has attempted to control all of these variables. Those few variables which have been controlled in some studies have not been controlled sufficiently. At best controls over such factors as teacher performance, classroom environment and outside influences are crude and imperfect.

Assumptions. Every study of class size involves many assumptions on such matters as school organization, methods of grouping pupils, teaching practices, promotion policies and many others. This raises the question: Would the findings hold true if the assumptions were changed? How universal are the conclusions?

Sampling. Of necessity studies of class size have been based upon sampling. Each deals with a segment of the population - selected schools, pupils, grade levels, subjects, teachers, classes, areas and the like. The question is: Are the samples representative enough for broad generalizations?

Measurement. The results of education which can be measured represent a very small part of the total. All such measurements are somewhat artificial in that they do not measure results as applied in real life. Pupils differ in acquired skill in answering various test forms. When we generalize from such fragmentary evidence, what we have ignored may be of greater significance than what we observed.

Interpretation. Many studies of class size compare group averages. The group with the highest average may not be the best in terms of all variables. It may be found that a group with a lower average individual attainment may be better in terms of such variables as aptitude and cultural background.

/1 Otto, Henry, Elementary School Organization and Administration (1954), pp. 217-218.

Professional Judgment

In the light of the foregoing and in the absence of convincing proof to the contrary, we believe that the combined judgment of teachers over a period of years should be given serious consideration in decisions on class size. Our growing sensitivity to individual needs, to the nature of groups and group dynamics and to the application of the learning process; in short, the deepening of our philosophy even more than statistical data has given us the basis for our judgments on class size. We dare not err on the wrong side in a matter which so vitally affects the quality of education.

Teachers and students of education generally consider classes of 25 as optimum. This judgment represents a balancing of two fundamental elements - individual attention and group learning. Competent teachers generally have found from long and hard experience that results are better with smaller classes. There are more time and opportunity for knowing and helping individual pupils. Teachers are concerned with discovering individual abilities and talents, diagnosing individual learning difficulties, providing appropriate guidance, direction, stimulation and remedial procedures for each, and encouraging many important learnings. They want to advance each pupil as rapidly as possible in mastery of the tools of learning and communication, in scholarship and in ability to use knowledge in critical thinking, clear expression, and creative endeavors, and in his total development - health, character, values, citizenship, workmanship, worthwhile interests and other desirable attributes.

Teachers advocate smaller classes for another reason. With smaller classes they have more time to experiment, to initiate and perfect more effective practices and to try good practices conceived by others. They find that they are forced to use routine methods when they are assigned larger classes. They have learned that in large classes attention becomes centered upon achieving a reasonable group norm rather than upon stimulating each pupil to advance according to his capacity.

Classes can be too small to provide enough stimulation of learning or to foster learnings associated with group life. Teachers tend to consider classes between 10 and 15 as too small. They tend to identify classes over 30 as too large. Thus the figure of about 25 is synonymous with a range of 15 to 30.

Other Considerations

Assuming that a school system is not thinking of class size in isolation, but in relationship to teacher qualifications, to total work load and to other conditions essential for effective teaching service, the decision on class size will depend upon what results are expected, how pupils are grouped for instruction, how a school is organized and certain practical administrative considerations. There is no single magic number applying to class size for all instructional purposes in schools. Some activities by their very nature presume larger groups than others. However, in any type of learning where individual attention is demanded, groups must be kept small.

Grouping pupils for instruction is not a matter of simply arriving at some mathematical average per teacher. How pupils are grouped has an important bearing on what a teacher can do with any given number.

There are many possible ways in which students may be grouped for instruction - by age, maturity, achievement, intelligence, aptitudes for particular types of learn-

ing, type of learning activity, special handicaps, abilities, or problems, sex, cultural background and vocational objective. These may be used singly or in various combinations but completely homogeneous grouping never can be achieved nor is it necessarily desirable.

An arbitrary and uniform class size can be attained only by widening the range of individual differences which exist within the group. This could handicap the effectiveness of the teacher in directing the learning if the problems created are such as to detract the attention of the teacher from the needs of all pupils.

A practical administrative problem arises with dividing groups. If a school system is aiming at a class size of 25 for elementary instruction, where will classes be divided? If classes are divided when they reach 50, the range will be from 25 or less to 50. If the division is made at 40, the range will be from 20 or less to 40. If the division is made at 35 as is generally the practice, the range will be from 17 or less to 35.

Another practical problem arises from the varying numbers of pupils with given characteristics from year to year and from school to school - even with such an easy-to-measure trait as chronological age. No matter what characteristics are considered in grouping, it is impossible to adhere to any fixed number in grouping unless extreme deviations are to be tolerated.

Concluding Statement

The optimum class size of 25 therefore is an average of those class sizes which take into account purpose, grouping, educational philosophy and other basic considerations; as, characteristics of pupils and different kinds of learning.

We find there is no simple formula for making class size decisions. Policy on the matter must be weighed periodically in terms of its effects upon the overall developments of pupils, the quality of learning, total class load of the teacher, and the quality of teaching. We believe that serious consideration should be given to the optimum class size of 25 which represents the professional judgment of teachers, supported by research studies. These show that, with good teachers, better teaching practices, accompanied by greater attention to individuals, tend to be associated with smaller classes.

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Table 3
Trend in Class Size in New York State Elementary Schools
1952-53 to 1958-59 by District Type

Type of District	Average Class Size 1952-53	1956-57	1958-59
New York City	32	30	ND*
Other Cities	29	29	27*
Villages	27	28	28
Supervisory Dist.	29	28	28
State Total	30	29	ND

* New York City was not included in our studies.

Table 4
Variations in Elementary Class Size in New York State
1958-59 by Areas

Data	New York City Metropolitan Area/1	Upstate Cities and Villages	Upstate Supervisory Districts	State/1 Total
Median Elementary Class Size	28.1	27.5	27.5	27.7/2
Percent of Classes under 26 pupils	28.9%	37.2%	35.6%	34.2%/3
Percent of Classes 26-30 pupils	35.2%	29.7%	30.0%	31.4%/4
Percent of Classes With 30 or More	35.9%	33.1%	34.4%	34.4%/5

/1 Exclusive of New York City
/2 27.3 in grades Kindergarten-3 and 28.6 in grades 4-6
/3 36.8% in grades Kindergarten-3 and 27.3% in grades 4-6
/4 34.1% in grades Kindergarten-3 and 31.8% in grades 4-6.
/5 29.1% in grades Kindergarten-3 and 40.9% in grades 4-6

Table 5
Class Load In Secondary Schools in New York State
by Areas, 1958-59

Data	New York City* Metropolitan Area	Upstate Cities & Villages	Upstate Supervisory Districts	State* Total
Median Number Classes Daily Per Teacher	5.4	5.6	5.6	5.5
Median Number Pupils Daily Per Teacher	121.3	133.4	114.1	121.7
Median Class Size	22.5	23.9	22.1	22.1
Percent of Teachers With Under 100 Pupils	24.6%	20.2%	33.9%	27.1%
Percent of Teachers With 100-150 Pupils	56.9%	53.7%	51.2%	53.7%
Percent of Teachers With 150 or More Pupils	18.5%	26.1%	14.9%	19.2%

* Exclusive of New York City

Table 6
Average Class Load of Secondary School Teachers by Subject,
New York State, 1956-57 and 1958-59

Subject	Average Number of Pupils per Day/1 1956-57/2	1958-59/3
English	116	120
History-Citizenship	128	135
Science	132	129
Mathematics	130	126
Combinations	121	122
Other	100	101
Total	124	122

/1 Exclusive of New York City
/2 Based upon a sample of over 12,000 teachers
/3 Based upon our survey