

Class Size Reduction: The Half Billion Dollar Folly

Mary K. Novello, Ed.D.

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Please contact:

**David Mueller, Business Manager
Nevada Policy Research Institute
P.O. Box 20312
Reno, Nevada 89515
Phone: 775-786-9600
Fax 775-786-9604
www.npri.org
dm@npri.org**

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*Nevada Policy Research Institute
P.O. Box 20312
Reno, Nevada 89515-0312
(775) 786-9600
Fax 775-786-9604
(800) 786-9602*

Executive Summary

Reducing class size is a persistently seductive idea. It just “seems” as if it should be advantageous to everyone: to the students who would garner more teacher time, to the teachers who would have less paper work, to the administrators who would have a contented staff and satisfied parents. It “feels” right, but it raises many questions. First of all, what is the optimum student/teacher ratio? How much does it cost? Will it favorably affect achievement?

Several decades of research settled on fifteen students per teacher in kindergarten and the first three grades as a somewhat arbitrary goal. All the research indicated that it was a costly effort, and the results were decidedly mixed regarding achievement gains. Then along came *Project STAR* (Student-Teacher Achievement Ratio) in Tennessee, a study which convinced many legislators and educators about the efficacy of Class Size Reduction.

Nevada was one of the states to jump on the CSR bandwagon, passing legislation in 1989 for a three-year phase-in of the program. The goal of 15 to 1 was to be established in first grade and “at risk” kindergartens, then spread to second grade, and finally third grade as well. Unfortunately, during the period of 1990 to 1992 that the program was to go into effect, Nevada encountered unprecedented growth, especially of low socio-economic families and those with limited English proficiency as well as a budget shortfall. The net result was that the state has not yet reached its stated goal of 15 to 1 and, in fact, was rated by the Heritage Foundation as 44th out of 51 states (and the District of Columbia) in 1999.

Nevertheless, the Nevada State Board of Education and the Nevada State Department of Education faithfully presented reports evaluating the program in 1993, 1995, 1998, and 1999. For the first two years, the reports included the results of a questionnaire sent to principals, teachers, and parents. In all cases, the opinions were overwhelmingly favorable towards class size reduction.

On the other hand, the achievement results were desultory. In some cases, children in the small classes did worse than their counterparts in larger classes. In a few cases they did better. White, Asian and Black children seemed to benefit a little from the program,

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as did special education students, but Hispanic, American Indian, and low socio-economic groups did not. The test data were analyzed with the most modern and sophisticated of statistical tools, and even those could not produce a bias in favor of the program.

And yet, in typical governmental fashion, each of these reports recommends spending more money on the program, more money on studying the results, and more money on special training for teachers. So far the taxpayers of Nevada have forked over nearly half a billion dollars for an idea which has produced nothing whatsoever.

C. Northcote Parkinson, after whom all those satirical economic "laws" were named, would be pleased.

Class Size Reduction: The Half Billion Dollar Folly

Mary K. Novello, Ed.D.

Introduction

Reducing class size is a persistently seductive idea. It just “seems” as if it should be advantageous to everyone: to the students who would garner more teacher time, to the teachers who would have less paper work, to the administrators who would have a contented staff and satisfied parents. It “feels” right, but it raises many questions. First of all, what is the optimum student/teacher ratio? How much does it cost? Will it favorably affect achievement?

Prior to 1998, there were more than 1100 research studies done in attempts to answer those questions. Without fail, the ideal teacher/student ratio was found to be one to one. Tutoring inevitably has a positive effect on student achievement. However, that ratio was deemed inaccessible and the number was finally set, somewhat arbitrarily, at fifteen students per teacher. The research studies examined class size reduction at all school levels and came up with something of a consensus that it was of little value beyond kindergarten and the first three grades of elementary education.

Class size reduction comes at a high price. For most school districts it means basically hiring twice as many teachers and finding twice as many classrooms for kindergarten, first, second, and third grades. The Nevada plan had cost approximately \$254 million up to the 1998-99 school year, and according to State Superintendent Mary Peterson, it is currently running at about \$80 million per year.

Regarding student achievement, the results of the research over the years were mixed. Some studies showed academic gains for children in small classes and others showed little or no difference. Then along came *Project STAR* (Student-Teacher Achievement Ratio) in Tennessee, a huge study of primary grades, which employed some of the best empirical techniques, such as random selection of participants, no special training of participants, and considerable follow-up information on the participants.

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Project STAR found:

- Smaller class students substantially outperformed larger class students on both standardized (Stanford Achievement Tests) and curriculum-based tests (Basic Skills First). This was true for both white and minority students in smaller classes, and for smaller class students from inner city, urban, suburban, and rural schools.
- The positive achievement effect of smaller classes on minority students was double that for majority students initially, and then was about the same.
- A smaller proportion of students in the smaller classes was retained in-grade, and there was more early identification of students' special educational needs.
- There were no significant differences in academic achievement for students in the larger classes with or without an additional instructional aide.

Two follow-up studies from Tennessee have allegedly corroborated the excellent results of *Project STAR*. The *Lasting Benefits Study* tracked the same students into fourth grade, when the smaller-class students returned to regular size classes and found that they still outperformed the other students in all academic subjects. This lasted through eighth grade, but decreased in magnitude. HEROS, Inc., a nonprofit research and evaluation organization, undertook a longitudinal study of the effects of *Project STAR* through high school and released preliminary findings in 1999, concluding:

...students who attended small classes completed more advanced courses than did students who attended regular and regular/aide classes. Therefore, it appears that small-class students were better prepared to enter college than their peers from the larger size classes. Furthermore, it seems that the students who were in STAR small classes were less likely to be retained, and were less likely to drop out of school. (Pate-Bain, Page 6)

Helen Pate-Bain, the Chairperson of HEROS, Inc., just happens to be the same person who initiated *Project STAR*. It appears that she has created considerable job security for herself.

As was true of many states, Nevada built its class size reduction plan on the Tennessee model. Under the leadership of Governor Bob Miller, the Legislature passed the Act in 1989, with implementation to begin in the fall of 1990. Total reduction was to be phased in over a period of three years. However, during that period, Nevada was the fastest growing state in the nation, and there was evidence that the number of children with special needs had increased as well. For example, the number of Limited English Proficient students grew from 7632 in 1989-90 to 10,664 in 1991-92. This created a situation unlike that in Tennessee during *Project STAR*, and together with the transiency that haunts several counties, made Nevada an altogether different kettle of fish.

Having proposed the goal of fifteen pupils per teacher in the elementary grades, the Legislature actually provided funds that enabled reduction to sixteen per teacher in selected "at-risk" kindergartens and first and second grade. A budget shortfall delayed implementation of the third grade phase until 1996-97. According to Nevada's State Department of Education and Fiscal Analysis Division, Legislative Counsel Bureau, the figures for 1996-97 were:

1. Kindergarten had an average of 23.4 students per teacher
2. First grade had an average of 16.1 students per teacher
3. Second grade had an average of 16.0 students per teacher
4. Third grade had an average of 22.6 students per teacher

In 1999, the Heritage Foundation rated Nevada 44th out of 51 (states and the District of Columbia) with an overall ratio of nineteen to one.

According to the State Board of Education Report in 1997, sixteen of the seventeen school districts requested variances from the fifteen to one ratio for one or more grades in the 1995-96 school year. For the 1996-97 school year, the number of districts requesting variances was fifteen. The 1995 Legislature passed Senate Bill 576 which allowed school districts to use funds provided as part of the third grade class-size reduction program to carry out an alternative program for reducing the ratio of pupils or to improve pupil achievement in grades one, two or three. Only two, Lyon and Washoe, chose to submit alternative plans.

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In summary, then, it is evident from the above information that, at least by 1999, the state of Nevada had not succeeded in reaching its declared goal of fifteen students per teacher in the primary grades and kindergarten. The \$254 million spent on the program had not even achieved what the Legislature had decreed it was to do.

Evaluation

While it is true that Nevada has not yet arrived at its class size reduction goal, it is possible that achievement gains might be so great that all the stakeholders might be satisfied with the higher-than-hoped-for ratios. Evaluation studies of the program have been produced in 1993, 1995, 1998, and 1999. For each of those years it was prepared by Dr. Mary Snow, Coordinator of Planning, Research, and Evaluation for the Nevada Department of Education, except in 1995 when it was prepared by Dr. James Pollard and Dr. Kim Yap from the Northwest Regional Education Laboratory (NWREL) in Portland, Oregon. The first two reports consisted of a pair of separate but related parts: a qualitative study of the responses to questionnaires sent to principals, teachers, and parents; and a quantitative study of data provided by the results of the Comprehensive Test of Basic Skills, Fourth Edition (CTBS/4).

Qualitative Findings

In 1993, the Executive Summary of the report said the results of the questionnaire data are clear:

- Principals, teachers and parents were overwhelmingly positive in their attitudes toward the class size reduction program.
- Principals, teachers and parents said that smaller class size is associated with new teaching practices, increased teacher-student interaction, positive student attitudes toward learning, greater learning and improved grades.

These qualitative findings are important. They are informative to policy makers and need to be considered for the future of class size reduction efforts in Nevada.

In 1995, the qualitative report was prepared by Judith Costa, Director of the Testing and Evaluation Department of the Clark County School District and by Rhoton Hudson, Teacher Specialist. They wrote

in their summary on Page 13:

Principal response to CSR is very positive regarding the extent to which CSR has brought about changes in schools....First- and second-grade teacher response to CSR is as positive as that of principals....Parents with children in first- and second-grade CSR classes are also very positive about the program.

State Superintendent Mary Peterson indicated in a memorandum dated April 8, 1996, that it would no longer be possible to conduct a survey of Nevada teachers and principals, but that the Clark County School District had volunteered to coordinate and analyze a state-wide survey of parents and children in the first and second grade reduced size classes.

Quantitative Findings From the 1993 Executive Summary:

For the period examined by this study, the quantitative data e.g., student achievement, did not produce exceptional results, except for some subgroups of the population.

- Most of the students tested over the three-year period showed that achievement levels remained about the same when small classes were compared with larger classes.
- Among Washoe-Rural students in the class size reduction year alone (1991-92), those in class sizes 1–20 did significantly better in reading and moderately better in math than students in classes 21 and over.
- Among the Clark students in the class size reduction year, the highest scores were earned by those in class sizes 16-25.
- The class size analysis results did not indicate substantial achievement differences between students in team-taught and self-contained classrooms at the time of this analysis.

Although the results of the quantitative analysis do not show a clear effect of class size on test scores at this time, the vast majority of adults most closely involved in the program believe that it is having such an effect.

In 1995, the preparers of the study wrote on Page 3:

This study investigated the relationship of class size to various student characteristics. These included: 1) special education 2)

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English as a Second Language 3) low socio-economic status 4) ethnicity and 5) gender. It should be noted that the numbers of students with the first three characteristics have increased in Nevada over the years that the class size reduction program has been in effect.

- When compared as a group to all other students, special education, English as a Second Language, low socio-economic students, and students of ethnic backgrounds except White and Asian all scored significantly lower in reading and mathematics scores.
- When the reading and mathematics scores of these subgroups were examined by a second grade experience in 15 or less to 1 or over 15 to 1 classrooms, there were few significant differences and these were mixed; in some cases higher scores were associated with small classes and in some cases with larger classes.
- When students were compared by gender alone, females scored significantly higher in reading while males scored significantly higher in mathematics scores. Differences in class size did not affect scores for females. For males, only reading scores in 1993 in rural and Washoe districts were related to class size, with higher scores in larger classes. For the first time a longitudinal study of Nevada students who had experienced class size reduction was attempted.
- There were no significant effects on gains in student test scores by a second grade experience in smaller or larger classrooms with the exception of gains in mathematics by rural and Washoe students in 1994.

In 1998, the evaluation concluded, on Page 8:

The differences in mean scores for reading, language, and math by degree of CSR experience were small but statistically significant overall. These results did not hold for all subgroups of students. Somewhat higher mean scores were associated with two years of class size reduction experience versus no years of such experience for Asian, Black, and White students; however this was not true for Hispanic and American Indian students. Reduced class size experience was not related to higher test scores among LEP students or low socio-economic students. Reduced class size experience was related to higher test scores for special education students.

The 1999 report concluded, on Page 13:

The results of this study are similar to those found in previous studies....In this analysis, for both fourth and eighth graders, the differences in mean scores for reading, language, and math by degree of CSR experience were small but statistically significant overall. However it is obvious that these differences are not as large as one would like in order to definitively prove the effectiveness of the program. It is important to be aware that when sample sizes are large, it is easier to detect significant differences in an analysis of variance. Therefore, while in this study differences in means are statistically significant, they may not be very meaningful in a practical sense.

Recommendations from the Department of Education

Starting with the 1993 report and continuing through the 1999 report, the recommendations to the Legislature, and, presumably, the public, consistently asked that the program be continued and that additional studies be conducted. Further recommendations from 1995 through 1999 included:

1. Fully fund the Class Size Reduction program for the grades it covers.
2. Fund programs which target preschool and early intervention programs for special populations (i.e. limited English proficient, single parent, disadvantaged, free school lunch).
3. Fully fund a comprehensive evaluation of Class Size Reduction.
4. Provide funding to include teacher and staff development.

Conclusions

Governments seem determined to persist in the policy that if something does not work, more of it needs to be done, a dangerous proposition. As Thomas Sowell wrote in The Vision of the Anointed:

Dangers to a society may be mortal without being immediate. One such danger is the prevailing social vision of our time – and the dogmatism with which the ideas, assumptions, and attitudes behind that vision are held....What is important about that vision are not only its particular assumptions and their corollaries, but also the fact that it is a prevailing vision – which means that its assumptions are so much taken for granted by so

Naturally, it requests more money to continue and study an already failed and over-studied program.

Surely our taxpayer dollars could be spent more wisely.

many people, including so-called "thinking people," that neither those assumptions nor their corollaries are generally confronted with demands for empirical evidence.

The Nevada Department of Education has collected information for nine years now, scrutinized it with the best and most sophisticated statistical tools, including hierarchical multi-regression correlation analysis, one-way and factorial analyses of variance (ANOVA), and concluded that little or no gain in achievement can be attributed to reduced class sizes in kindergarten and the early primary grades. The data analysis, in fact, showed much higher correlations between ethnicity and socio-economic status and test scores than between class size and test scores. So, what does the Department, in its collective wisdom, do about it? Naturally, it requests more money to continue and study an already failed and over-studied program.

Surely our taxpayer dollars could be spent more wisely. The U.S. Senate Health, Education, Labor and Pensions Committee seems to agree. In March of this year (2000), they approved a pilot program to let 15 states spend federal education dollars as they see fit. Money for projects such as class-size reduction in elementary schools could be used for other purposes, including signing bonuses for new hires or funding private school vouchers. The states, which were not specified, would have to show that poor children were catching up in test scores and other measures of school performance.

Sources

Nevada State Board of Education (January 31, 1997). Class-size reduction program report. NRS 388.700.

Pate-Bain, H., Fulton, D., and Boyd-Zaharias, J. (1999). Effects of class-size reduction in the early grades (K-3) on high school performance: Preliminary results from Project STAR, Tennessee's longitudinal class-size study. Washington, DC: Health and Education Research Operative Services, (HEROS), Inc.

Pollard, J.P. and Yap, K.O. (March 1995). The Nevada Class Size Reduction evaluation study 1995.

Snow, M.B. (August, 1993). The 1993 Class Size Reduction evaluation study.

Snow, M.B. (August, 1998). An evaluation of the Class Size Reduction Program.

Snow, M.B. (April, 1999). An evaluation of the Class Size Reduction Program.

Sturm, H.P. (April, 1997). Nevada's Class-Size Reduction Program. Research Division, Legislative Counsel Bureau.