

Does Family Size Affect Academic Achievement?

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Though increasing modifications of thought and behavior regarding the importance of the family abound in the United States, The Church of Jesus Christ of Latter-day Saints has stressed the importance of family life since its inception. In a time when marriage and family solidarity are being questioned as important values by many groups in the social spectrum, numerous Mormon couples have expressed increasing pressures to modify their traditional beliefs and decrease their family size as part of their own personal solution to growing world problems. Not only has government pressure been applied in various parts of the world against larger families, but public magazines and professional journals alike have generally reported the need for small families in contemporary society as an answer to the "population explosion," especially where this concern for space and resources relates to matters of education.

One of the more popular arguments for that stance suggests that children in small families perform better academically because of the intensity of their interaction with their parents. This position argues that intensity of interaction is demonstrated by parental involvement in the child's study, leading directly to higher achievement on the part of the child. It further suggests that with the increase in the number of children comes a diminution of adult-child interaction and subsequently a lower achievement level for the children of larger families.

In a recent article, in which the relationship of family size and the well-being of its members were discussed, James Lieberman indicated that:

In 1964, the Presidential Task Force on Manpower Conservation found that about 70 percent of Selective Service rejects [came] from families of four children or more, though only 33 percent of the nation's children came from such families. A further breakdown

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showed that 47 percent of the rejects came from the 11 percent of the children who were members of families with six or more offspring. Interpretation of these results is difficult because large family size and poverty were associated and could not be separated for analysis.¹

Though Lieberman did point out the inadequacy of the data because proper statistical control of socioeconomic status was not possible, his inclusion of the example above as one demonstrating how family size affects children is not warranted; without such a control the data have little meaning.

Furthermore, we can find conflict even among family researchers who study the effects of family size and intelligence. Joe Wray states that the effects of family size on intelligence, which he reports as an inverse relationship, cannot be justified in terms of social class differences.² But Darwin Thomas in reexamining the same data, concludes that social class does account for the difference.³ Robert Zajonc suggests that in order to have "brainier children" couples should keep them few and far between.⁴ His research has recently been reported widely in the scientific as well as the popular media. He argues that the average intellectual environment decreases as infants join a family. Thus, if the father and mother each have an IQ of 100 and a child is born, the average family IQ would decrease markedly, assuming the child would have only an IQ of 20 or 30 or so. By the time the second child was born, the first child would raise his IQ a bit, but the second child would be born and as a consequence, the average would decrease with each additional child. While his data comes from a large group the additional IQ differences of 100 and 100.5, which he cites as an example, would not be significant.

Other researchers have pointed out that academic achievement is not a function of family size.⁵

¹E. James Lieberman, "A Case for the Small Family," PRB Selection No. 32, The Population Reference Bureau, Inc., Washington, D.C., April 1970.

²Joe D. Wray, M.D., "Population Pressure on Families: Family Size and Child Spacing," *Reports on Population/Family Planning*, a publication of the Population Council, August 1971.

³Darwin L. Thomas, "Family Size and Personal Welfare: An Analysis of Conformity, Religiosity and Self Esteem," preliminary draft, Washington State University, February 1972.

⁴Robert B. Zajonc, "Dumber by the Dozen," *Psychology Today* 8 (January 1975):37-43.

⁵J. B. Higgins, E. W. Reed, and S. C. Reed, "Intelligence and Family Size: A Paradox Resolved," *Eugenics Quarterly* 9 (June 1962):84; K.F. Kennett and A. J. Copley, "Intelligence, Family Size and Socio-Economic Status," *Journal of Biosocial Science* 2 (July 1970):227-36; R. B. Cattell, "The Fate of National Intelligence: Test of a Thirteen-Year Prediction," *Eugenics Review* 42 (1950):136; P. R. Kunz and E. T. Peterson, "Family Size and Academic Achievement of Persons Enrolled in High School and the University," *Social Biology* 20 (December 1973):454-59.

Considering the difficulties of arriving at any solid conclusions when faced with such a variety of ideas and interpretations of data, we undertook the following study in an attempt to provide more information regarding this problem. We will examine the relationship of family size and school achievement and, in addition to family size, we will hold constant the effects of socioeconomic status, sex, and church membership.

It may be argued that parents who have few children would not only be able to provide more resources of an economic nature, but would also be in a position to offer more adult-to-child contact, assuming that such adult contact should promote better grades. On the other hand, one may argue that a child who has more sibs will have more interaction with them, including some assistance with school problems, which should then yield higher grades. The truth is that a student with a math problem today may receive little or no help from a parent educated some years ago without the "new math."

We expect that when we examine achievement in terms of grades most of the variance can be explained in terms of social class; that is, larger families are generally from the lower classes and their class position would negatively affect the grades the children receive. One possible explanation for this phenomenon is that high schools appear to be oriented toward the middle class (e.g., typically teachers and administrators are recruited from the middle class, or by definition, they are upwardly mobile members of the working class); consequently there seem to be organizational factors inherent in the system that reduce the chances for the lower-class students to obtain good grades.

Sex is reported to be an important factor in explaining differential high school grades. Female students have higher grade point averages than male students; however, males do better than the females in the composite American College Testing Program (ACT) scores.⁶ The effect of sex on academic achievement was therefore controlled in this study.

Religion was also controlled in the current study because of the reported religious differences in the areas of motivation and achievement. Donald Light and Suzanne Keller (1975) report differences in the dropout rates by religion and in involvement in higher education, but conclude that the religious differences are not well understood.⁷

⁶American College Testing Program, *Technical Report for the ACT Assessment Program* (Iowa City, Iowa: ACT Publications, 1973).

⁷Donald Light, Jr., and Suzanne Keller, *Sociology* (New York: Alfred A. Knopf, 1975).

THE SAMPLE

We have reported the responses from 2,926 male adolescents and 3,127 female adolescents ($N=6,053$) from forty-six different high schools. The sample approximates a cluster sample. (A cluster sample represents data obtained from the boundaries of a series of randomly selected geographic areas from which, subsequently, the researcher might draw his respondents randomly or systematically.) The operating plan in this instance was to obtain respondents from high schools in all major regions of the United States; however, the sample turned out to be slightly biased in favor of the Intermountain West. The northeastern portion of the country is underrepresented. Because of the interest of high school administrators in this research, the refusal rate was lower than originally anticipated. Only seven school districts declined the invitation to participate in the research; three of those districts were in the Northeast.

In some cases all of the students who were invited to participate went into the school auditorium or gymnasium. In other cases the questionnaires were administered in the classrooms. All students were instructed how to complete the questionnaire. Within each of the individual high schools the sample consisted of either the total population in school that day or a cluster sample selected from required classes such as English, mathematics, or health.

Students reported their grades, family size and information which allowed analysis of social class—father's education, occupation, and source of income.

Social class was found to be important as a determinant of grades, as may be observed in the table which follows. As the table indicates, the grade-point average is related positively to social class, with an upper class average of 2.90, middle class of 2.61, and lower class of 2.44, where a 4.00 grade-point average equals an "A." These differences are as we would expect.

A comparison of male-female differences indicates that the female students in the upper and middle class do better than the male students in those classes; however, this reverses for the lower class. Generally all studies indicate better achievement for the female student in high school.

While the differences are not statistically significant, in general the LDS students have an equal or higher GPA, with the exception of the lower class males; there Mormons fare badly. Protes-

THE RELATIONSHIP OF FAMILY
AND SCHOOL GRADE POINT AVERAGE BY
SOCIAL CLASS, SEX, AND RELIGION

		<i>Upper Class</i>			
		2.90			
		<i>Male</i>			
		2.85			
		<i>No Religion</i>	<i>Catholic</i>	<i>LDS</i>	<i>Protestant</i>
		2.81	2.70	2.90	2.86
Small		2.83	2.76	2.94	2.86
Large		2.72	2.62	2.86	2.88
		<i>Female</i>			
		2.96			
		<i>No Religion</i>	<i>Catholic</i>	<i>LDS</i>	<i>Protestant</i>
		2.93	2.83	3.05	2.96
Small		3.06	2.90	3.04	2.96
Large		2.55*	2.71	3.06	2.94
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		<i>Middle Class</i>			
		2.61			
		<i>Male</i>			
		2.51			
		<i>No Religion</i>	<i>Catholic</i>	<i>LDS</i>	<i>Protestant</i>
		2.50	2.43	2.61	2.50
Small		2.48	2.44	2.63	2.52
Large		2.56	2.42	2.59	2.47
		<i>Female</i>			
		2.70			
		<i>No Religion</i>	<i>Catholic</i>	<i>LDS</i>	<i>Protestant</i>
		2.55	2.66	2.86	2.68
Small		2.59	2.72	2.88	2.70
Large		2.46	2.58	2.84	2.64

	<i>Lower Class</i>			
	2.44			
	<i>Male</i>			
	2.48			
	<i>No Religion</i>	<i>Catholic</i>	<i>LDS</i>	<i>Protestant</i>
	2.54	2.39	2.27	2.57
Small	2.49	2.39	2.09	2.48
Large	2.59	2.39	2.38	2.61
	<i>Female</i>			
	2.70			
	<i>No Religion</i>	<i>Catholic</i>	<i>LDS</i>	<i>Protestant</i>
	2.40	2.32	2.43	2.43
Small	2.80	2.31	2.59	2.43
Large	1.60*	2.33	2.32	2.43

*Indicates a significant difference.

tants rate higher than Catholics and all groups designated as religious are higher than those in the "no religion" category. Jews were excluded from this phase of the study because the number in our sample was too small to use.

Having noted the effects of class, sex, and religion—controlled variables—we can now examine the effects of family size. Small families were designated as those with five or fewer children, and large with six or more children. In fifteen of the cells, the small family is associated with a higher GPA. In two cells the GPA is equal, and in seven cells the larger families have the higher GPAs.

When these differences for family size were statistically tested, however, there were only two cells of family size which were different (using a difference of means test) the upper class females with no religion and the lower class females with no religion.

CONCLUSION

We may conclude, therefore, that family size is not an important determinant of grades achieved by high school students. If a couple should make a decision to limit the size of their family, it ought to involve reasons other than the academic achievement of their children.

We suggest that much of the literature dealing with family size, as it may influence the sibs, needs to be more carefully examined. While the data here examine family size only as it relates to the achievement of grades, the finding of no relationship between grades and family size appears to be significant. Other variables should also be examined to test the accuracy of statements made by some proponents of the superior position of the small family. Other preliminary findings from our data suggest that other variables will not be unlike that of achieved grades.

Different religions may respond in different manners but Mormon parents who are dedicated to the self-actualizing of their children could increase interpersonal contact and not set the family aside or limit it for personal or economic gain. President David O. McKay once said:

Having children is a physical process by the experience, but the experience is a spiritual one as well. It involves continuous self-sacrifices of many kinds (possibly even the sacrifice of immediate financial security). It is through the choice of spiritual values, where they conflict with material values, that true security is to be found.⁸

Most Mormon activities form a nucleus around the family and perhaps such programs as the Family Home Evening program and others would allow a Mormon couple to have more interpersonal contact, at least collective contact, with family members, even though they have more children than the average couple.

⁸David O. McKay, *Church News*, 19 February 1952, p. 4.