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BIRTH ORDER AND ACHIEVEMENT

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Summary.—This survey concerned the effect of sex and academic field on the well-documented relationship between birth order and achievement of 414 graduate students. No difference was found in the tendency for firstborn males ($n = 240$) and females ($n = 174$) to be high achievers. Academic field (science, $n = 156$; social studies, humanities, $n = 208$) also had no bearing on the relationship between birth order and achievement. The study did show a strong link between scholastic achievement and ordinal position which is consistent with past research.

The behavior and characteristics of firstborn children have been the subject of many studies. As early as the 1930's, Adler described the "dethronement" of the firstborn which occurs when the next sibling is born. He postulated that the effort to recapture the parents' prime attention and affection would play an important part in the life of a firstborn individual. Modern research on birth order has indeed demonstrated the sizable effect of ordinal position in the family. Personality variables such as adult-orientation, achievement motivation, upward mobility, etc. are all influenced in consistent ways among first-, middle-, and last-born children.

For example, firstborns have been described as "oriented toward an adult world" whereas laterborns are more oriented to the world of their peers. Singer (1971) found that particularly among girls, firstborns are more apt to hold values similar to their parents', communicate with parents, have greater affection for parents, and conform to parental demands in terms of achievement and other expectations. It is likely that firstborns exhibit this strong internalization of adult standards because they are thrust early into adult roles. Many oldest children, especially girls, get household responsibilities including the care of younger siblings.

Another interesting difference between first-, middle- and last-born children has been described by Douvan, *et al.* (1966). They found that middle-children are less likely than oldest or youngest children to achieve upward mobility in socio-economic status. However, there was a notable sex difference in this pattern. Female middle-children were neither upward nor downward mobile whereas the male middle-children actually tended to be downward mobile. The authors suggest that this unusual lack of upward mobility may reflect the middle-child's demoralization for he must suffer "competition with (the) older child and . . . displacement by the younger (child)" (Douvan, *et al.*, 1966, p. 27).

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But of all the correlates of birth order, one of the strongest is achievement motivation which, it should be noted, underlies upward mobility. Firstborns have far more ambitious educational goals and spontaneously give more achievement related answers to questions about job choice and future decisions (Douvan, *et al.*, 1966). Firstborns are also more likely to achieve a higher education and even personal eminence. They are overrepresented among American presidents (Goodel, 1972), astronauts (*Washington Post*, 1969), people listed in *Who's Who* (Schachter, 1963), and National Merit Scholarship finalists and winners (*Annual Report of the National Merit Corp.*, 1965). Interestingly, the Scholarship Report commented on finding a "stair-step progression pattern," with firstborns outscoring secondborns, secondborns outscoring thirdborns, etc. (1965, p. 57). Elder (1962) found this same step-wise pattern, and noted that it was more pronounced in lower-class families. He also found that males were more strongly affected by this trend than females. However, the reverse sex bias is reported by Sampson (1962). He found *female* achievement patterns to be more affected by ordinal position.

The over-all finding of high achievement among firstborns is reported with remarkable consistency. This relationship between birth order and achievement has been explained on the basis that older children receive a less diluted dose of their parents' attention. Firstborns, in particular, are subject to far more parental "pressures, hopes, and anxieties" than younger siblings (Douvan, *et al.*, 1966, p. 289). A study by Douglas (1964) lends curious support to this thesis. He found that middle-class mothers visit the schools more often to discuss their oldest children than to discuss younger siblings. Likewise, Senn and Hartford (1968) present case study findings that emphasize the theme of anxiousness and high expectations surrounding the birth of a first child. It seems that parents may be more ambitious and worried about their first children but more easy going with subsequent offspring. Thus, laterborn children are less achievement oriented and more relaxed.

Many of the foregoing studies cite sex differences in the effects of ordinal position, but the results are confusing and contradictory (Douvan, *et al.*, 1966; Elder, 1962; Sampson, 1962; Singer, 1971). The current research was designed to further investigate the question of a sex bias in the tendency for firstborns to achieve. The effect of being the oldest boy or girl but not necessarily the oldest child is also considered. Finally, the role of academic field is studied to determine whether it has any bearing on the relationship between birth order and achievement.

METHOD

Sample

Graduate students comprised the sample (see Table 1). An effort was made to contact students in a variety of academic departments, representing the

TABLE 1
THE SAMPLE: * GRADUATE STUDENTS BY SEX AND FIELD

Field	No. Solicited	No. Who Responded		
		Male	Female	Total
Science	541	134	22	156
Social Sciences & Humanities	432	106	152	258
Total	973	240	174	414

*Of the social science and humanities students solicited, 28.6% returned the survey cards compared to 59.7% of the science students.

pure sciences, social sciences, and humanities. The data are suggestive rather than definitive however, since accessibility to students was not equal in all departments and because only 42.5% of those solicited returned completed survey cards.

Procedure

A survey card was placed in each student's mailbox (see Table 2). The cards were returned through campus mail.

TABLE 2
THE QUESTIONNAIRE

Dear Graduate Student:	
Please fill out the questionnaire below for a study on birth order. Results will be posted.	
1. Sex: Male.....	Female.....
2. Degree(s) sought: Master's	Doctorate
3. Field of study	4. Your age
5. List siblings by age: Brothers,,,,,	
Sisters,,,,,	

RESULTS

The tendency for firstborns to be high achievers (as measured by graduate student status) was strongly confirmed. Oldest children from two- and three-sibling families were significantly overrepresented among graduate students (see Table 3). However, there was no sex difference in this regard; birth order was nonsignificantly related to sex ($\chi^2 = .25$, see Table 4). Moreover, the same finding was made when birth order was measured within one sex¹ ($\chi^2 = .31$, see Table 4). Hence, there appears to be no sex bias in the relationship between birth order and achievement regardless of whether birth order is measured within or across the sexes.

Individuals in different academic specialties were also compared. Birth order was nonsignificantly related to academic field among men, women, and both sexes pooled ($p > .05$, see Table 5). That is, the preponderance of firstborns was as great among science students as among social science and humani-

¹Males were considered "firstborn" if they were the oldest boy, regardless of whether they had older sisters. Likewise, females were considered "firstborn" if they were the oldest girl.

TABLE 3
GOODNESS OF FIT TESTS ON TWO- AND THREE-OFFSPRING FAMILIES

Family Size	Firstborn		Laterborn		χ^2	<i>p</i>
	<i>n</i>	%	<i>n</i>	%		
Two Offspring	89	62.2	54	37.8	8.08	<.01
Three Offspring	52	49.1	54	50.9	11.03	<.001

TABLE 4
BIRTH ORDER VERSUS SEX

	Absolute Birth Order (Ordinal Position Across the Sexes)				χ^2	Relative Birth Order (Ordinal Position Within One Sex)				χ^2
	Male		Female			Male		Female		
	<i>n</i>	%	<i>n</i>	%		<i>n</i>	%	<i>n</i>	%	
Firstborn	125	52.1	95	54.6	.25	169	70.4	118	68.7	.31
Laterborn	115	47.9	79	45.4		71	29.6	56	31.3	

TABLE 5
BIRTH ORDER VERSUS FIELD

	Males				χ^2	Females				χ^2
	Sci- ence		Social Science/ Humanities			Sci- ence		Social Science/ Humanities		
	<i>n</i>	%	<i>n</i>	%		<i>n</i>	%	<i>n</i>	%	
Firstborn	78	58.2	47	44.3	3.80	14	63.6	81	53.3	.46
Laterborn	56	41.8	59	55.7		8	36.4	71	46.7	

	Both Sexes				χ^2
	Sci- ence		Social Science/ Humanities		
	<i>n</i>	%	<i>n</i>	%	
Firstborn	92	59.0	128	49.0	2.98
Laterborn	64	41.0	130	51.0	

ties students. Thus, academic field appears to have no bearing on the relationship between birth order and achievement.

CONCLUSIONS

These data support numerous other research findings that firstborns are higher achieving. Neither sex nor academic field had a significant bearing on the relationship between birth order and achievement. However, this study was not definitive because the sample could only include those departments which allowed access to their students and not everyone returned the forms. Future studies are needed to survey a wider variety of fields including professional schools.

One interesting finding of this study was the lack of sex bias in achievement with regard to birth order within one sex. Countless studies have been done on the effect of being the oldest child while relatively little attention has been given to the significance of being the oldest boy or girl. Yet the psychological impact of being the oldest child of one's sex may be substantial. After all, many parents have additional children just in the hopes of getting a boy (or girl) at last. Family size, however, is a confounding variable in this research. There may be a big difference between being the oldest boy in a family of two and the oldest boy in a family of five. Future studies in this area should take absolute ordinal position and family size into account.

A provocative study by Schooler (1972) has questioned the merit of birth order research. Schooler contends that variables surrounding birth order, i.e., social class, race, family size, etc., may be influential factors. Indeed, the present authors agree that one should be cautious about making inferences from research on birth order until more work is done on these mediating variables. Hence, in accordance with Schooler's suggestion, the current research was designed to refine our understanding of how birth order affects achievement by considering this relationship in conjunction with sex and in conjunction with academic field. But considerably more work is needed to clarify the interaction and interrelationships of the variables surrounding birth order. The effect of sex on other ordinal positions could be considered for example. Another fascinating avenue for research is to determine whether different achievement patterns are shown by firstborns whose mothers are themselves firstborn, and those whose mothers are laterborn.

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