
Parents' Knowledge of Students' Beliefs and Attitudes: An Indirect Assay of Parental Solicitude?

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In two studies, undergraduates filled out questionnaires containing various attitude and belief items, and their parents then provided both their own responses to the same items and their best guesses as to how their children had responded. As predicted, stepfathers were significantly less accurate than genetic fathers, and maternal accuracy increased as a function of the mother's age when her child was born. On average, mothers and fathers did not differ in accuracy, nor was offspring sex a significant predictor of parental accuracy. However, mothers were most accurate in guessing the views of firstborn sons, whereas fathers tended to be more accurate about daughters' views. These results suggest that parents' ability to guess their children's views may provide a useful index of parental interest and/or of parent-child closeness.

KEY WORDS: Attitudes; Birth order; Discriminative parental solicitude; Maternal age; Parenting; Stepfathers.

Parents are variably attentive and solicitous to their children, and it is of both theoretical and practical interest to test hypotheses about determinants of that variation. An evolutionary psychological theory of discriminative parental solicitude suggests several hypotheses (Daly and Wilson 1988a, 1995). One is that maternal solicitude will be positively related to the mother's age at the time of her child's birth; a lifespan developmental trajectory in which the welfare of extant children is increasingly prioritized is an expected natural selective consequence of the fact that human female reproductive value (RV) diminishes with age, so that the value of a child of a given age and condition relative to the mother's own RV increases. Another hypothesis is that stepparents (but not necessarily adoptive parents) will exhibit lesser parental solicitude than genetic parents.

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These hypotheses have been strongly supported in studies using "negative assays" of discriminative parental solicitude, namely child abuse and filicide (e.g., Daly and Wilson 1985, 1988b). Whether or to what extent the same variables can account for differentials within the range of positive parental actions remains largely unknown, however, partly because of a paucity of useful measures of parental interest and investment.

Direct behavioral measures of parental attentiveness and interactions in standard settings can be powerful (e.g., Mann 1992), but may be of diminishing interpretability beyond infancy, especially with fathers and in complex role-differentiated societies such as our own, because the ways in which parents invest in their children's welfare are diverse. Measures of financial and time investments are illuminating where there is little variability in roles or wealth (e.g., Cronk 1991), but in role-differentiated industrial societies the use of such measures is bedevilled by the problem of how to take proper account of variable parental means and time demands (but see Judge and Hrdy 1992; Smith, Kish, and Crawford 1987). Finally, the "closeness" of intimate relationships can be assessed with at least some validity by more or less directly asking protagonists to rate it (e.g., Aron, Aron, and Smollan 1992; Berscheid, Snyder, and Omoto 1989; Salmon, *in review*). However, this seductively simple method can be misleading when one is comparing specific groups predicted to differ, because the normative expectations against which subjects judge their relationships are themselves likely to shift as one judges one's closeness to, say, a coresident genetic father versus a nonresident father versus a stepfather (Smith and Morgan 1994).

This paper proposes a novel approach. We hypothesize that relatively solicitous parents are relatively likely to respect their children's opinions, to take account of their preferences, and in general, to listen to them. Thus, a parent's familiarity with the contents of a child's mind may reflect, in part, the extent to which that parent pays attention to that child, and may thus provide an indirect measure of parental solicitude. As a first test of this approach, this paper reports two studies of Canadian parents' accuracy in guessing belief and attitude responses of their young adult offspring. The first study concerned comparisons of genetic parents, adoptive parents, and stepparents, and the effects of maternal age at the child's birth. The second study again addressed maternal age effects, adding consideration of birth order.

STUDY 1

Method

Subjects were recruited in winter 1992 for a study of "Beliefs and Attitudes of University Students," by means of posted notices targeting an Introductory Psychology class. Participation constituted one of a variety of options for fulfilling a course requirement. The notices soliciting participation stressed that the undergraduate researcher was especially interested in recruiting subjects who had been raised either by adoptive parents or with a stepparent, but did not exclude others from signing up.

Responding subjects came in small groups to appointments in a classroom, where they filled out an anonymous questionnaire. Subjects recorded age and sex, and responded to 50 items framed as propositions, by circling a number on a 6-point scale anchored as 1 = disagree and 6 = agree. Most of the propositions concerned how the subjects would characterize their own attributes and preferences (e.g., "I consider myself creative"; "I prefer classical music to rock music"; "I prefer outdoor activities to indoor activities"), whereas about 20 were concerned with convictions, principles, and beliefs that were not explicitly self-referential (e.g., "Free trade has benefitted Canada's economy"; "Pornography promotes violence against women"; "A woman should have the right to an abortion"; "There is a God who created us").

After completing their answers, subjects were given four additional copies of the 50-item questionnaire, with distinct printed headers and with franked envelopes for returning them, to take home to their parents. Each parent was to receive two questionnaires. The first instructed responding parents to fill it out as they imagined their child (the student subject) would have done, without consulting the child; the second questionnaire was then to be filled out with the parent's own opinions. Parents were also asked their own ages and whether they were genetic parents, stepparents, adoptive parents, or adoptive stepparents; respondents who were not genetic parents were asked how old the focal child was when they assumed their parental role. Although questionnaires were number-coded to enable linking the data by family, anonymity was maintained and was emphasized to the participants.

Mailed returns were received from the parents of 71 subjects, but 17 of these apparently misunderstood the instructions, either returning only one questionnaire per parent or else entering identical responses on the "parental guess" and "own opinions" versions. These 17 were discarded, leaving 54 useable cases:

- 22 (16 females, 6 males) with responses from both genetic parents,
- 9 (7 females, 2 males) with responses from both adoptive parents,
- 12 (9 females, 3 males) with responses from genetic mother and stepfather,
- 4 (3 females, 1 male) with responses from genetic father and stepmother,
- 4 (2 females, 2 males) with response from genetic mother only,
- 2 (females) with response from stepfather only,
- 1 (female) with response from adoptive father only.

All 54 subjects were students enrolled in Introductory Psychology. Ages ranged from 18 to 28, with 44 subjects aged 19 to 20.

Two indices were computed for each parent: the mean absolute magnitude of errors in the parent's 50 guesses of how their children had responded to the items, and the mean absolute magnitude of disparity between their own responses and those of their children. For each item, these errors and disparities range from 0 (if parent and child responded identically) to 5 (if parent and child ticked opposite extremes on the 6-point scale).

Results

The mean magnitude of parental errors in guessing the children's responses ranged from a low (i.e., the most accurate parent) of 0.66 to a high (i.e., the least accurate

parent) of 1.86. The mean magnitude of disparity between parent's and child's own views ranged from 0.42 to 2.38.

The mean parental guessing error was significantly correlated with disparity of views ($r = 0.56$ for mothers, $p < .001$; $r = 0.37$ for fathers, $p = .007$). That is, parents were less successful in guessing their children's views the more those views differed from their own. Thus, a second measure of parental accuracy was computed: the standardized residual of the previously computed guessing error after the effect of disparity between parent and offspring views had been partialled out (using the SPSSpc REGRESSION/ZRESID procedure). All tests were conducted on both measures of parental accuracy.

In general, mothers and fathers did not differ in accuracy, nor were parents differentially successful in guessing the views of daughters versus sons. The mean magnitudes of error for genetic parents were similar:

- 1.24 \pm 0.30 (*SD*) for mothers guessing sons' views,
- 1.21 \pm 0.23 for mothers and daughters,
- 1.21 \pm 0.20 for fathers and sons, and
- 1.19 \pm 0.15 for fathers and daughters.

The average magnitudes of errors by genetic parents, stepparents, and adoptive parents are portrayed in Figure 1. Differences among mother types did not approach significance. (Surprisingly, the few stepmothers were the most accurate group.) Among father types, analysis of variance was precluded by significant heterogeneity of variance (Cochran's $C = .564$, $p = .033$), mainly because of the high variance among adoptive fathers. However, the planned comparison of genetic fathers versus stepfathers could be carried out by one-tailed t -test. Stepfathers proved to be significantly ($p < .05$) less accurate than genetic fathers, regardless of whether the accuracy measure was the absolute error ($t_{38 \text{ df}} = 1.80$) or the standardized residual ($t = 1.71$).

The average magnitude of steppaternal errors was greater the later the man had assumed his steppaternal role (Figure 2). This association was significant ($p < .05$), again regardless of whether the accuracy measure was the absolute error ($r = .519$, $t_{11 \text{ df}} = 2.02$) or the standardized residual ($r = .582$, $t = 2.37$). (One stepfather did not provide this information).

The average magnitude of maternal errors was a significant (one-tailed $p < .05$) decreasing function of the mother's age when her child was born (absolute error: $r = -.291$, $t_{37 \text{ df}} = 1.83$; standardized residual: $r = -.353$, $t = 2.27$).

Discussion

The results suggest that having parents guess how a focal child responded to a questionnaire may indeed be a promising technique for assessing parental interest in and hence solicitude toward that child. There were significant effects of both variables for which we had predictions, namely maternal age and step-relationship. Considerations of reproductive value predict that a mother will cherish a child more the older she was when the child was born, and the available evidence is supportive (e.g., Daly and

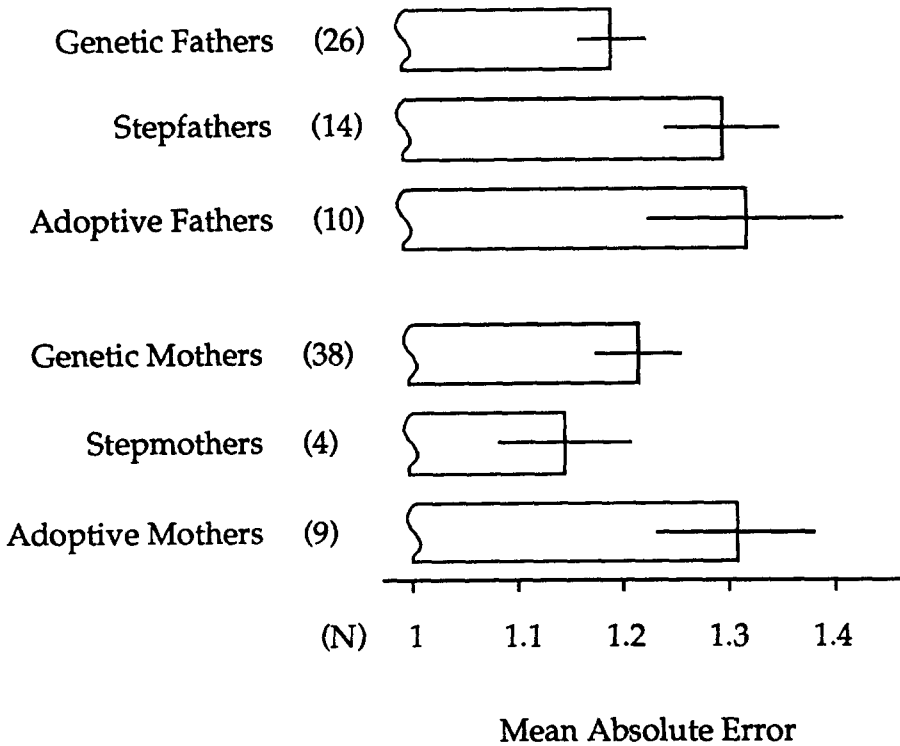


FIGURE 1. The mean absolute error (\pm standard error of the mean) of genetic, step-, and adoptive parents' guesses of their undergraduate children's responses to belief and attitude items in Study 1.

Wilson, 1988b; Salmon, in review), but one might have predicted that a larger "generation gap" would nevertheless leave older mothers less aware of their children's views. Thus, this study's finding that maternal accuracy improved as a function of maternal age at the child's birth lends support to both the reproductive value hypothesis and the proposition that accuracy can be treated as an indirect assay of solicitude.

Stepfathers were significantly less accurate than genetic fathers, also as predicted. However, other aspects of these comparisons were unexpected. The data in Figure 2 suggest that the steppaternal inaccuracy may depend on a lack of prolonged exposure to the child; this is not what one would expect on the basis of Flinn's (1988) study, in which steppaternal hostility was not at all mitigated by prolonged coresidency from the child's infancy. It was also surprising that stepmothers were the most accurate group of all, but this was not a significant effect. The significantly elevated variance in the accuracy of adoptive fathers is also of potential interest: Some of both the most and the least accurate guessers were in this group, suggesting that adoptive fatherhood may truly be more heterogeneous than genetic fatherhood with respect to paternal feeling and parent-child intimacy. The power of all these comparisons among parental types is, of course, likely to have been mitigated by the participants' self-selection.

Another variable of predictable relevance to parental solicitude is birth order.



FIGURE 2. The mean absolute error of stepfathers in Study 1, as a function of the age at which the stepfather assumed that status. *Open circles:* stepdaughters; *filled circles:* stepsons.

There is considerable evidence of parental favoritism to firstborns, perhaps especially firstborn sons (Sulloway, in press). Unfortunately we did not ask subjects about their sibships in Study 1. Thus, a second study was undertaken with new subjects and with some procedural modifications, to further validate the use of parental accuracy as an assay of parental solicitude and to explore possible patterns of parental favoritism in relation to birth order.

One reason for procedural changes was that several parents in Study 1 apparently misunderstood the task and returned inappropriate materials. Also, some subjects suggested that the three-page, 50-item questionnaire was tedious and that parents' concentration may have flagged in going through it twice. Accordingly, for Study 2, a much shorter one-page, 12-item questionnaire was constructed, with instructions made more conspicuous, clearer, and redundant. Items were confined to issue-related beliefs and attitudes, rather than the sort of self-descriptive items included in Study 1.

STUDY 2

Method

Subjects were recruited in winter 1993 in two third-year Psychology classes, by a senior undergraduate requesting help with her research project, "A Study of the

Attitudes of Young People Today." Questionnaires were distributed to 230 students, of whom 180 (45 males, 135 females) completed the student version on the spot. As in Study 1, subjects were given additional questionnaires to take home to their parents, with franked envelopes in which to return them. Each parent received three pages stapled together: a brief explanatory cover page, followed by the two questionnaires. One was designated "Mothers' [or Father's] Questionnaire #1—Your Own Views," the other "Mother's [or Father's] Questionnaire #2—Your BEST GUESS about the views of your child, [first name]".

As an incentive for students to persuade their parents to respond, a lottery was held in which were entered all students for whom a complete set of five questionnaires was returned. The prize was a \$40 gift certificate at the university bookstore. Eighty-eight complete sets of five questionnaires were returned, representing 19 male students and 69 females. Unlike the solicitation in Study 1, no attempt was made to recruit subjects living with substitute parents for this study, and in fact only a few participated: Responses were received from genetic mother plus stepfather for three subjects (2 females, 1 male), from two unrelated adoptive parents for two subjects (both female), and from two genetic parents for the remaining 83 subjects. Demographic information that had not been collected in Study 1 was the age and sex of all siblings: 49 subjects were firstborns (including 11 only children). Subjects' ages ranged from 18 to 25; mean age of males was 22.0 and of females 21.7.

The questionnaire consisted of 12 propositions for which subjects were instructed to "circle the number that best represents your own belief, attitude, or opinion" on a five-point scale, with 1 = "strongly agree"; 2 = "agree somewhat"; 3 = "neutral or undecided"; 4 = "disagree somewhat"; 5 = "strongly disagree." As in Study 1, we computed the mean absolute magnitude of error in parents' estimates or guesses of how their children had responded to the items, and the mean absolute magnitude of disparity between their own responses and those of their children; this time, the maximum error or disparity is four.

Results

As in Study 1, the mean magnitude of parental error in guessing children's views increased significantly ($p < .001$) as the discrepancy between the parent's own views and those of the child increased ($r = 0.501$ for mothers, $r = 0.357$ for fathers). Thus, a standardized residual error, with the effects of discrepant views partialled out, was again used as a second measure of parental accuracy. Mothers and fathers again did not differ in accuracy by either measure, but fathers were significantly more accurate in guessing the views of daughters than sons (mean absolute error: $t_{86\text{ df}} = 1.99$, $p = .05$; standardized residual error: $t = 3.12$, $p = .002$).

The mean error was 1.09 for the 83 genetic fathers, 1.00 for the 2 adoptive fathers, and 1.42 for the 3 stepfathers. Despite the small numbers, stepfathers were again significantly less accurate than genetic fathers by the standardized residual error measure ($t_{84\text{ df}} = 1.93$, one-tailed $p = .03$), though not by the absolute error measure ($t = 1.53$, one-tailed $p = .06$).

Accuracy of genetic parents is portrayed in Figure 3 in relation to the student

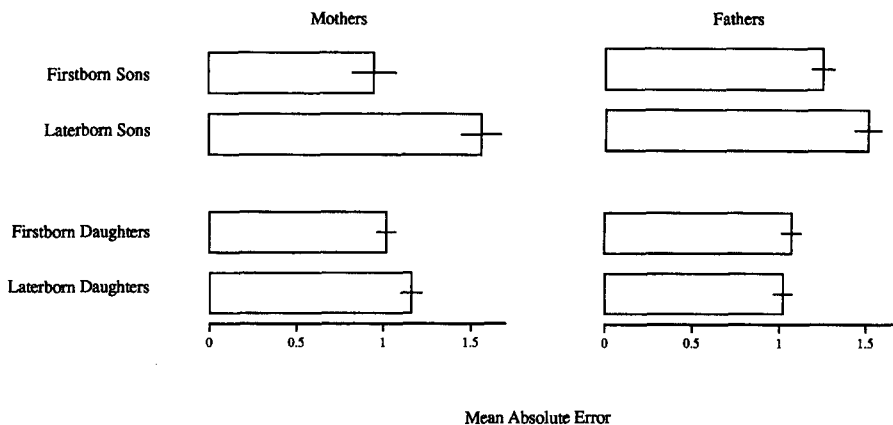


FIGURE 3. The mean absolute error (\pm standard error of the mean) of genetic mothers and fathers guessing the views of firstborn and later-born sons and daughters in Study 2.

subject's sex and birth order. Genetic fathers were significantly more accurate in guessing their daughters' views than their sons' views by the standardized residual error measure ($t_{81 \text{ df}} = 2.67, p < .01$), but not by the absolute error measure ($t = 1.75, p = .08$). They were also significantly less variable in their accuracy when guessing the views of firstborn daughters as compared to later-born daughters (absolute error: $F = 3.04, p = .002$; standardized residual: $F = 3.81, p < .001$). Genetic mothers were not differentially accurate for daughters versus sons, but they were significantly more accurate for firstborn sons than for later-born sons, regardless of whether the accuracy measure was the absolute error ($t_{17 \text{ df}} = 3.70, p = .002$) or the standardized residual ($t = 2.73, p = .014$).

In contrast to the results of Study 1, the mean absolute error of genetic mothers was not significantly correlated with the mother's age at child's birth for the sample as a whole ($r = -0.003$). However, when the analysis was confined to firstborns, the predicted negative relationship was replicated ($r = -0.246, t_{47 \text{ df}} = 1.72, \text{one-tailed } p < .05$).

Discussion

These initial studies suggest that assessing parents' knowledge of the contents of their children's minds may indeed provide a useful assay of child-specific parental interest or solicitude. Predicted correlates of parental solicitude (Daly and Wilson 1988a, 1995) proved to be related to parental knowledge in anticipated ways: There was independent evidence from both studies that mothers knew the views of children they had borne later in life better than the views of those they had borne earlier, and that stepfathers knew their children's views less well than did genetic fathers. It is especially striking that the latter effect was significant in both studies given the small numbers of subjects. A larger sample of stepmothers is needed to determine whether an analogous contrast exists, but the data from Study 1 suggest that it may not. Unpredicted results from Study 2, warranting further investigation, were that

fathers performed better when guessing the views of their daughters, and that improved parental performance for firstborns was specific to the case of mothers guessing the views of firstborn sons.

Assessing the correlates of variable parental knowledge in this way is apparently novel. Some research has addressed the validity of parental presumptions about their young children's knowledge and competencies (e.g., Yarmey and Rosenstein 1988), but we have found only two studies in which the accuracy of parents' knowledge of their children's beliefs and/or attitudes was assessed. Noller and Bagi (1985) found that mothers were more accurate than fathers in guessing how their adolescent children had rated the quality of familial interactions, whereas Rice and Reicher (1993) showed that parents were ignorant of their children's concerns about nuclear war. In neither study was parental knowledge treated as a variable whose vicissitudes might be meaningfully related to other characteristics of parent, child, or family.

Rather than reflecting variable parental interest, these variations in parental knowledge might reflect variability in the children's willingness to confide. But in either case, parental knowledge would constitute an assay of the closeness of the relationship. In a study whose results complement those reported here, Salmon (in review) has found that undergraduate respondents born to relatively old mothers were more likely to nominate those mothers as their closest intimate acquaintances and sources of emotional support than were same-age, same-birth-order respondents whose mothers were younger. Further research is needed to elucidate both the processes mediating maternal age effects, and the determinants and meanings of variability in parents' knowledge of their children's views.

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