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ABSTRACT

In this study of the relationship between factors in the home and school achievement, teachers' ratings and student scores on a standard achievement test were examined in light of parental expectations for the child's independence behavior, the child's personal qualities, and his future work values. Mothers of 441 fifth graders were interviewed about independence training of their child, personal qualities attractive in a child, and relative importance of various job factors. These data were analyzed in relation to the child's I.Q. and achievement test scores and to socio-economic status of the father. The authors conclude that: 1.) results are similar in terms of how parental attitudes and expectations in reference either to over- and under-achievement or to absolute achievement; 2.) parents of over-achievers differ from parents of under-achievers in the relative importance they attach to various personal qualities and job factors; 3.) a modest relationship exists between independence training and school achievement; and 4.) two factors concerning initiative and the child's purchase of his own goods jointly determine independence training. (Author/SES)

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INDEPENDENCE TRAINING AND SCHOOL ACHIEVEMENT

A Study of Parental Attitudes And Expectations As Related To Children's Elementary School Success

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#112

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PREFACE

This is the fourth in a series of reports on a study of the relationship between factors in the home and school achievement. The home variables included in this report represent only a small sample of the information available. Other reports in this series are by Crawford and Eason (1970), Schroder and Crawford (1970) and Schroder, Crawford and Wright (1971).

In this study, teachers' ratings and scores on a standard achievement test (the MAT) were examined in the light of parental expectations for (i) the child's independence behaviour (ii) the child's personal qualities and (iii) his future work values.

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INTRODUCTION

All mothers expect that, as their children grow older, they will be capable of "doing more things for themselves." Not all mothers' expectations are the same, nor do all mothers expect that all children should be able to do any one thing at the same point in time. At first, the mother is likely to teach the child tasks that are relatively simple, such as feeding and dressing himself, although they may not seem so easy at the time; these are generally referred to as "caretaker" tasks. In addition, the child is taught what activities he can engage in without coming to harm. At first he may learn to play indoors without climbing on top of the buffet; later, to play outdoors without going into the street. Eventually, he is taught to cross the street safely. Mothers also encourage their children to play by themselves, to seek amusement on their own and to use their own initiative, within limits, in determining "what to do now." Intuitively, it would seem that children who are given encouragement and opportunity to behave independently should be able to function better in a school setting than children who have not received this encouragement and opportunity. One way of assessing the extent to which a child is and has been receiving encouragement towards independence is to ask the child's mother about the kinds of things she would like her child to accomplish, and when.

Independence Training

As part of a longitudinal study of the relationship between the school achievement of elementary school pupils and their home environ-

ments, information was collected on mothers' attitudes towards, and expectations of, their children. Specifically, mothers were given a list of activities and asked to indicate the ages at which they expected that their child would be able to perform each of them. The technique was originally devised by Winterbottom (1965) and used in conjunction with various projective test evaluations of the children, eight to ten-year-old boys, in order to determine whether mothers' expectations influenced their children's desire for achievement. Winterbottom's research was based on a theory of motivation developed by McClelland[1] which states that the child develops motives as he is rewarded for certain kinds of behaviour. In the case of the achievement motive, children are encouraged and rewarded for "doing things on their own" in a variety of situations. The greater the number of different tasks the child is expected to master, the greater is his general need to achieve, "n Achievement" as McClelland has termed this motive. Thus Winterbottom expected to find that mothers who demanded more independence from their sons at an early age would have sons with more achievement motivation (n Achievement) and who would be rated as more successful in school than boys who had few demands made of them.

To assess the extent of the mothers' independence demands, Winterbottom presented 29 mothers of eight to ten-year-old boys with a 20 item checklist of demands they wanted their boys to fulfil and at what age they expected them to be able to fulfil them. Each boy's n Achievement level was assessed by having them first tell four stories, each approximately four minutes long, based on themes suggested by the

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1 See Madsen, 1968, for a detailed summary.

researcher. Then the achievement motive was aroused by having each child work at a puzzle-solving task which he could not complete in the time allowed, following which he was asked to tell four more stories.

After both sets of stories were scored for achievement-related imagery, the boys were then sorted into two groups of ten each: those who scored high in both the relaxed and achievement-oriented conditions, and those who scored low in both conditions. The results of Winterbottom's study can be summarized as follows:

(a) Mothers of the boys who were high in n Achievement made the same number of demands as mothers of the boys who were low in n Achievement, but the mothers of boys high in n Achievement made these demands earlier.

(b) The boys high in n Achievement were rated higher in their actual school achievement by their teachers, although not to a significant degree.

(c) The boys high in n Achievement were different from the others in that they were rated as taking more pleasure in success at their schoolwork and were also rated as appearing more motivated to succeed.

Boys and their mothers from Winterbottom's study who were still available six years later were retested in 1959 (Feld, 1967). This time the mothers were given an expanded checklist and were asked to indicate, on a six-point scale, the extent to which they currently encouraged each of the behaviours described. Feld found that there was a negative correlation between the results of the two checklists. That is, mothers who made a lot of demands when the child was younger did not make so many at a later date, and vice versa. In addition, the relationship between mother's demands and boys n Achievement at ages 14 to 16 was weaker than the one found in Winterbottom's study. Feld suggests that these differences indicate that

the mothers' ratings are not an indication of what can be expected of their sons at a later date as a result of the "pressures" that the mothers are currently applying; rather, the mothers' statements of the demands may actually only reflect what the child is currently doing or not doing.

If Feld's interpretation of the data is accepted. then the results of a later study by Chance (1961) carried out with 52 bright (mean I.Q. 127) six-year-old children and their mothers become clearer. Chance's hypothesis was that mothers favouring earlier independence training should have children who are over-achievers. Mothers' independence training attitudes were assessed by using Winterbottom's questionnaire plus an additional eight items.

The difference between a child's reading and arithmetic achievement scores and his I.Q. score determined whether the child was an under-, average-, or over-achiever. An over-achiever, for example, was one whose achievement test scores exceeded his I.Q. score. The results of the study directly contradicted the original hypothesis -- later independence training demands were associated with over-achievement.

It appears then, that mothers of over-achievers did not have to make a large number of demands for independence at an early age simply because their children were already exhibiting these types of behaviour.

Note that in Winterbottom's study, only absolute school achievement, not achievement relative to potential was examined, so there is no way of ascertaining whether the apparent difference in outcome between the two studies is, in fact, real or apparent.

In addition to asking the mothers eight questions regarding independence training, three related questions concerning the importance of some job factors and characteristics of the child were also presented

as part of the Parent Interview of the Study of Achievement. Although the format of these questions differs from the independence demands questions, the results are presented here because these questions together reflect various areas of importance to the mothers in raising their children.

PROCEDURE

Description Of Population

This is the fourth in a series of studies on the relationship between school achievement and home environment. From a population of 8,695 pupils participating in a longitudinal Study of Achievement, 721 of their mothers were interviewed.[2] There were 441 pupils (223 boys and 218 girls) with data sufficiently complete for inclusion in this study. At the time the interview was conducted most of the pupils were in grade 5 and all were 10 or 11 years old.

Description Of Measures Used

1. Independence Training Questions

As part of the Parent Interview Questionnaire, (PIQ), mothers were asked to state the age at which they expected their child to be able to do each of the following:

1. know his way around the City;
2. make his own decisions about choosing clothes;
3. make his own decisions about spending money;
4. come out on top in games and sports;
5. do well in general competition with other children;
6. first try something new without depending on you for help;
7. really be interested in how he is doing in school;
8. help you with chores.

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2 For an outline of the Study of Achievement, and the Parent Interview Questionnaire, see Crawford and Eason (1970).

The above questions were selected from those on a questionnaire by Winterbottom (1965) using his results as a guide to picking representative items likely to reflect demands which might be related to school achievement.

2. Job Factors

Another question on the PIQ asked the mothers "In judging how good a job was, how would you rank the importance of the following[3]:

salary
interest
challenge
opportunity for advancement
security"

3. Personal Qualities

Another PIQ question asked the mothers, "For your child what would you like the order of importance to be for the following qualities?[4]

PART I
Neat, tidy and clean
Happy
Pleasant and friendly
Intelligent
Hard working

PART II
Punctual
Obedient and well-behaved
Healthy
Able to take care of him/herself
Inquisitive/curious"

(The items in Parts I and II were to be ranked separately.)

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3 & 4 In ranking job factors and personal qualities, mothers were asked to choose the most important item first, then the least important item, then the second most important, then the second least important. This procedure tends to emphasize those items ranked first and last and helps to assure that a similar ranking procedure is used by all the mothers.

4. I.Q.

Scores from the Otis Quick Scoring Mental Ability Test[5] had been collected when pupils were in grade 2.

5. Achievement Measures (Absolute)

(a) Scores from the Metropolitan Achievement [illegible], both verbal and arithmetic sections, had been collected when pupils were in grade 3.

(b) Teachers' ratings of each pupil in terms of:

A. Adjustment
B. Creativity
C. Performance
D. Prediction (of how far he would go in school)

had been collected when pupils were in grade 3.[6]

6. Achievement (Relative)

An over-, under-achievement score was obtained for each pupil by taking the actual MAT score and subtracting a "predicted MAT score" (derived from the I.Q. score).[7] Five levels of relative achievement were defined: 1) extreme under-achievers (n = 55)
2) under-achievers (n = 83)
3) average-achievers (n = 245)
4) over-achievers (n = 91)
5) extreme over-achievers (n = 46).

In some of the analyses to be reported, only three levels of relative achievement were used; in these cases the extreme over-achievers were pooled with the over-achievers (n = 138) and the extreme under-achievers were pooled with the under-achievers (n = 137).

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5 New edition, Alpha Short Form

6 Teachers' Rating Questionnaires can be found as appendices to Crawford and Eason (1970) and to Schroder and Crawford (1970).

7 A complete description of this technique can be found in Schroder and Crawford (1970), pp. 9-13.

7. Socio-Economic Index (SEI)

Socio-economic status of the child's father was estimated by a combined index based on the Warner and Blishen scales.[8]

Organization Of The Results

As outlined in the previous section, the following data were available for the pupils included in this study:

1. Independence Training (IT) Items (Mothers)
2. Job Factors Rankings (Mothers)
3. Personal Qualities Rankings (Mothers)
4. I.Q.
5. Achievement (Absolute) (a) MAT
   (b) Teachers' Ratings
6. Achievement (Relative; i.e., Over-, Under-Achievers)
7. Socio-Economic Index (SEI)

In the RESULTS section which follows, the data have been analyzed in order to try and answer the following questions (the following structure is maintained throughout the RESULTS section).

A - Questions About Independence Training Items Alone

1. Do parents agree on the age at which a given independence demand should be met?
2. What is the order in which parents expect these independence demands to be met?
3. Is this order similar for boys and girls?
4. Do parents who expect early independence in one area also expect early independence in other areas?
5. Can we treat independence training as a single concept, or must we consider several unrelated types of independence training?

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8 Analyses are based on father's occupation when pupil was in kindergarten, Eason and Crawford (1969) as were the other reports in this series (#83, #89, and #95).

B - Questions About The Relationship Of Independence Training To Other Factors

6. Do children whose parents expect earlier independence:
   (1) come from a higher socio-economic class?
   (2) have a higher I.Q.?
   (3) receive higher ratings from teachers?
   (4) score higher on tests of verbal and arithmetic achievement?
   (5) consistently over-achieve?

7. Which independence training items (if any) can be used as predictors of school achievement (as measured by MAT, teachers' ratings and relative achievement)?

C - Questions About Job Factors And Personal Qualities

8. What is the order of importance (value) attached by parents to the various job factors and personal qualities?

9. Do parents differ in these rankings for boys and girls?

10. How do mothers of over-achievers differ from mothers of under-achievers in the importance attached to these job factors and personal qualities?

In an attempt to answer the above questions the following comparisons were made on the data.

A - Comparisons On Independence Training Items

1. Mean ages on independence training items for boys and girls.

2. Intercorrelations among independence training items.

B - Comparisons Between Independence Training Items And Other Factors

1. Correlations of independence training items with: I.Q.
   MAT
   teachers' ratings
   SEI.

2. Mean ages on independence training items for each of the five levels of over-, under-achievement.

C - Comparisons On Job Factors And Personal Qualities Items

1. Mean rankings on items for boys and girls.
2. Mean rankings on items for each of the five levels of over-, under-achievement.

RESULTS

A - Independence Training Items Alone

1. Do Parents Agree On The Age At Which A Given Independence Demand Should Be Met?

If parents do agree on the appropriate age for fulfilling each demand, then for each question, one might expect most answers to be within a year or so of the average. On examining the data, only 55 per cent of the mothers' answers were within two years of the average (the standard deviation of answers was 2.63 years). On all questions, answers spanned a range of at least 12 years (the range on item 6, "Try something new," was 17 years).

There is some evidence to suggest that this lack of agreement may be because a question means different things to different parents. For example, item 7, "Really be interested in how he is doing at school," shows a distinctly bimodal distribution; i.e. many parents see age 6 as the year for expected acquisition while many others give age 10 as their answer (see figure 1). It is possible that some parents reasoned that any child who goes to school should be interested in school, while for others the phrase "really interested in school" might imply self-motivation on the par of the child, something he would not be expected to achieve until a later age. Several other questions (numbers 2, 3, 4, and 5) showed a similar but less marked tendency to bimodality.

In Summary: whether the wide dispersion in responses is due to differing interpretations of the questions or due to actual differences in independence training demands, we must conclude that these questions do not demonstrate strong agreement among parents on the age at which independence demands should be met.

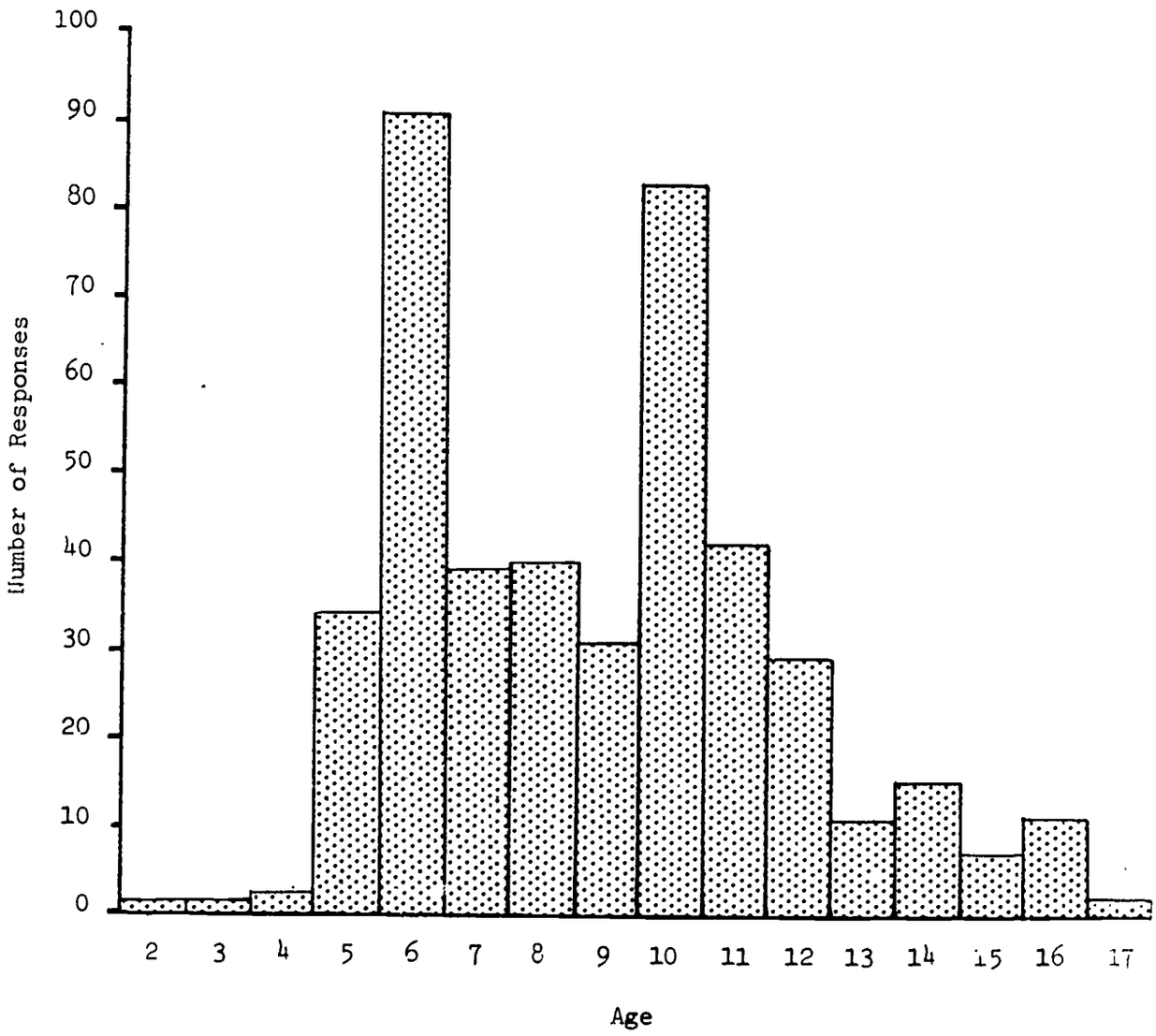

Fig. 1. Distribution for independence training item #7.

2. What Is The Order In Which Parents Expect These Independence Demands To Be Met?

Average ages[9] for each of the eight questions are shown in figure 2. There are two distinct clusters: items 1, 2 and 3 cluster around age 12, while the remaining items cluster around age 9.

Among the demands expected to be met around the age of 9, "Help you with chores" (age about 8½) is expected to be mastered before "Try to come out on top in games and sports" and "Do well in general competition with other children," (both about age 9¾). Also expected to be accomplished around age 9 were "First try something new without depending on you for help" and "Really be interested in how he is doing in school."

Among demands expected to be met around the age of 12, "Make own decisions about spending money by himself" (about age 11½) clearly comes before "Know his way around the city" and "Make own decisions about choosing clothes" (both age 12).

It is interesting to note that all subjects were 10 or 11 years old, so that one cluster of items represents (on the average) demands yet to be achieved, while the other cluster represents (on the average) demands that have been already met.[10]

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9 Results reported in this section are based on the outcome of a Duncan's multiple range test for unequal cell frequencies, Kramer (1956). This statistical test provides an indication of which item mean ages differ sufficiently more than might be expected by chance alone. Differences are reported as clearly present when this chance (i.e. α) is less than 5 per cent.

10 It may well be that parents interpret the question "At what age do you expect your child to: ...." to mean "he should first achieve this demand during the year when his numerical age is ___." If this is the case, a parent who expected that his child will achieve 'x' at age 10½ will report age 10, and the resulting data will underestimate the true average age expected. If we adjust for this by adding ¼ to ½ year to all age estimates, we see the two clusters of items even more clearly straddling the age range of the subjects.

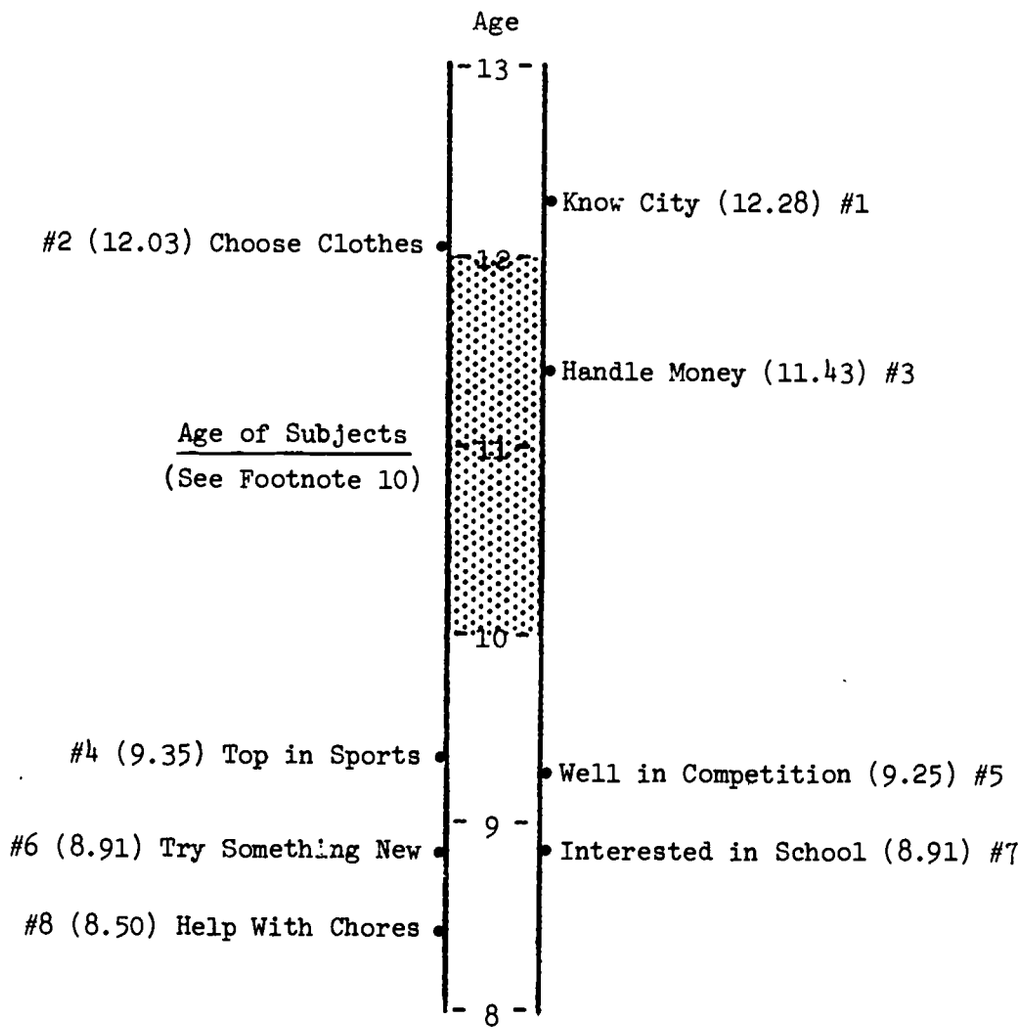

Fig. 2. Mean ages for independence training items.

One might speculate that the items in the age 12 cluster, all have to do with purchase of goods and services by the child (i.e., Know city, choose own clothes and handle own spending money). Four of the items in the age 9 cluster relate to individual initiative (i.e., Top in sports, do well in competition, try something new, and interested in school). The eighth item "help with chores" is a parent directed activity. This classification will be examined further under Question 5.

To Summarize: "Know city," "choose own clothes" and "spend own money" are demands most age 10 and 11 year olds are expected to meet around the age of 12, while "be tops in sports," "do well in competition," "try something new," "be interested in school," and "help with chores" are demands that parents of most 10 to 11 year olds perceive as having been met around the age of 9.

3. Is This Order Similar For Boys And Girls?[11]

Figure 3 shows mean ages for both boys and girls on the eight independence training items. Clearly, there are differences between boys and girls in expected ages for achievement on items 1, 2, 3 and 6. It appears that for all the demands yet to be achieved, (i.e., "Know city," "choose own clothes," "handle own money") boys are expected to perform these tasks earlier than girls; while for the demands already achieved, only "try something new" (item 6), is there a difference (boys again are expected to perform earlier). However, none of the above differences is large enough to support a conclusion that the order of parental expectation of achievement of these demands is different for boys and girls.

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11 See footnote 9 on page 14.

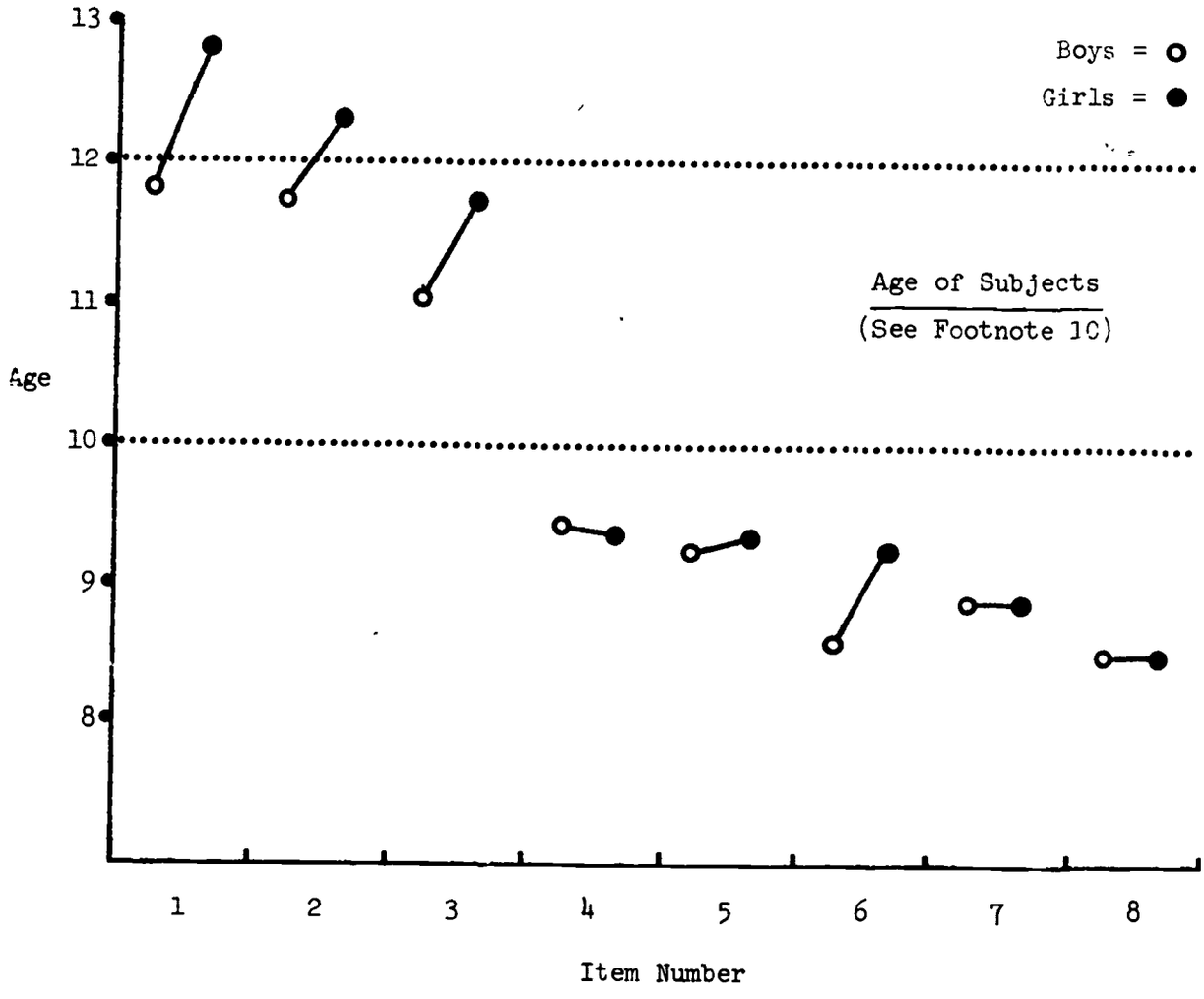

Fig. 3. Mean ages on independence training items for boys and girls.

It is interesting to speculate that on demands that children have not yet met, parents expect boys to perform earlier, while on demands children already met, parents recall the actual age of achievement as equal for boys and girls. Other possibilities also suggest themselves: perhaps boys are seen as stepping out ahead of girls in achieving independence about the age of 10; or perhaps, boys are seen as more precocious in money matters but not on other items. The nature of the data in the current study does not enable us to determine which of these possible explanations is correct.

To Summarize: no major differences between boys and girls in the order of expected achievement of independence demands were found; however, boys were expected to perform at a slightly earlier age than girls on "know city," "choose clothes," "handle own money" and "try something new."

4. Do Parents Who Expect Early Independence In One Area Also Expect Early Independence In Other Areas?

To answer this question, correlation coefficients[12] were calculated for each of the (28) possible pairs of independence training items (see Table 1).

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12 A correlation coefficient of +1.00 (the highest possible) indicates perfect agreement among all parents in the rating of this pair of items and implies that the response of a given parent on one item will enable us to predict exactly the response of that parent on the other item. A correlation coefficient of zero indicates absolutely zero agreement among all the parents in the rating of this pair of items and implies that the response of a given parent on one item will not help us at all in predicting the response of that parent on the other item. A correlation coefficient of -1.00 (the lowest possible) indicates that parents agree perfectly in their ratings of these items, and that a high score on one item implies a low score on the other item, and that the response of a given parent on one item will enable us to predict exactly the response of that parent on the other item. Intermediate values of the correlation coefficient imply intermediate degrees of agreement, (and hence, some predictability).

As an indication of the degree of predictability of the score on one item from knowledge of the score on the other, compute the square of the correlation coefficient. For example, in Table 1 the correlation between item 4 and item 7 is +0.40; the square of this coefficient is 0.4 x 0.4 = 0.16. Thus 0.16 x 100 = 16 per cent of the variability in the responses to one of these items can be removed by predicting the response on that item from knowledge of the response to the other item.

TABLE 1

CORRELATION COEFFICIENTS FOR THE
EIGHT INDEPENDENCE TRAINING ITEMS

	1	2	3	4	5	6	7	8
1	---	.39	.35	.23	.14	.23	.20	.12
2	.39	---	.57	.27	.23	.19	.27	.09
3	.35	.57	---	.31	.34	.27	.32	.22
4	.23	.27	.31	---	.64	.49	.40	.31
5	.14	.23	.34	.64	---	.51	.51	.38
6	.23	.19	.27	.49	.51	---	.41	.37
7	.20	.27	.32	.40	.51	.41	---	.33
8	.12	.09	.22	.31	.38	.37	.33	---

Inspection of this table reveals that each item is positively correlated with each other item. That is parents who give high age expectations (relative to other parents) on one item, tend to give high age expectations on the other items as well, and vice versa. The degree of agreement by parents on the items is not high; however, the coefficients range in value from a low of .09 (almost no predictability) to a high of .64 (41 per cent predictability), with an average value of .32 (10 per cent predictability).

In Summary: it appears that parents show rather low consistency across items in their relative age expectations for independence behaviour.

5. Can We Treat Independence Training As A Single Concept, Or Must We Consider Several Unrelated Types Of Independence Training?

To answer this question we again refer to the independence training item correlation matrix (i.e., Table 1). We have noted that the average correlation coefficient is .32 indicating only a low degree of agreement among parents in their ratings. One would conclude that no single item clearly reflected the common factor shared by all of the items combined. This argues against treating all the items as a single concept.

Is it possible that one (or more) subset of the items tends to measure a common factor peculiar to that subset? It may be recalled that under Question 1 (above) it was suggested that items 1, 2, and 3 might be thought of as measuring a common "does own purchasing" factor, that items 4, 5, 6 and 7 measured a common "individual initiative" factor, and that item 8 measured a "parent directed activity" factor.

To test this contention a factor analysis of the correlation matrix was performed.[13] Two clear factors emerged, one composed of items 1, 2 and 3,

13 The matrix was originally factored by the principal factors method to which a varimax rotation procedure was applied. The first three eigenvalues were 3.33, 1.34 and 0.75, indicating the presence of two factors.

the other of items 4, 5, 6, 7 and 8. (Loadings of the items on the two factors are shown in Table 2.)[14] This outcome provides strong evidence for the hypothesis that two types of independence training are being measured by the eight items. The hypothesis that item 8 measures a third type of independence training was not supported as this item loaded well on the second factor.

In Summary: since all item correlations are positive we must conclude that some common independence training factor consisting of two related subfactors is being tapped; however, since the coefficients are all low, it appears that a lot of other things are also being measured. Items appear to cluster in two factors, the first factor consisting of those demands yet to be achieved (items 1, 2 and 3) and a second factor consisting of those items already achieved (items 4 to 8).

B - Relationship Of Independence Training To Other Factors

6. Do Children Whose Parents Expect Earlier Independence:

(1) Come From A Higher Socio-Economic Class? To answer this and the next three parts of this question correlation coefficients between independence training items and other factors (such as SEI, I.Q. and teachers' ratings) were examined. These correlation coefficients appear in Table 3. Examination of the first column of Table 3 shows that there is essentially no relationship between the socio-economic index used in this study and the independence training items (since all correlation coefficients are very close to zero).

Thus, there is no evidence of a relationship between socio-economic class and independence demands.

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14 Loadings may be considered as the correlations between the items and the factors.

TABLE 2

FACTOR LOADINGS FOR EIGHT INDEPENDENCE TRAINING ITEMS, AFTER VARIMAX ROTATION

Item	Factor 1	Factor 2
1	0.15	0.47
2	0.10	0.81
3	0.27	0.67
4	0.68	0.23
5	0.81	0.16
6	0.64	0.17
7	0.56	0.25
8	0.49	0.09

TABLE 3

CORRELATIONS OF INDEPENDENCE TRAINING ITEMS WITH OTHER FACTORS

Independence Training Items	Socio-Economic Index	I.Q.	Teachers' Ratings					Metropolitan Achievement Test	
			Adjustment	Creativity	Performance	Prediction	Total	Verbal	Arithmetic
1	.02	-.08	.03	-.07	-.09	-.10	-.05	-.07	-.10
2	-.08	-.03	-.02	-.09	-.08	-.12	-.08	-.04	-.04
3	-.07	-.07	.01	-.05	-.10	-.09	-.05	-.08	-.02
4	-.02	-.06	-.04	-.12	-.09	-.10	-.10	-.09	-.09
5	-.06	-.05	-.06	-.12	-.13	-.09	-.11	-.09	-.10
6	.04	-.01	.00	-.05	-.09	-.02	-.04	-.04	-.03
7	.03	-.07	-.17*	-.25*	-.17*	-.18*	-.23*	-.21*	-.15*
8	-.03	-.04	.01	-.03	-.02	-.05	-.02	-.04	-.03

* The coefficients differ from zero by a value of .14 or more. See footnote 18 on page 24.

(2) Have A Higher I.Q.? Column two of Table 3 contains correlations[15] of independence training items with I.Q. Since all coefficients are negative,[16] but very low, i.e. higher I.Q. tends to be associated with earlier independence expectations, the depth of the relationship is so slight as to have almost no predictive value.

(3) Receive Higher Ratings From Teachers? As with I.Q. scores correlations of teachers' ratings (columns 3 to 7 of Table 3) with independence training items are consistently negative but low. Teachers' ratings of adjustment show essentially no relation to independence training (average correlation coefficient -.03), while teachers' ratings of creativity, performance and prediction of school success showed a slight relationship (average correlation coefficients around -.10).

We must therefore conclude that there is a clear (but very minor) tendency for children whose parents expect early independence to be rated higher by their teachers on creativity, performance and prospects for future success.

(4) Score Higher On Tests Of Verbal And Arithmetic Achievement? Correlations of verbal and arithmetic sections of the MAT (last two columns of Table 3) with independence training items are also consistently negative but very low.

There is, thus, a clear (but again, very minor) tendency for children whose parents expect early independence to score higher on both verbal and arithmetic sections of the MAT.

(5) Consistently Over-Achieve? Each pupil in this study has been classified into one of three levels of relative achievement.[17] For each

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15 Coefficients in the I.Q. column are estimates derived by averaging those for boys and girls calculated separately. Conclusions reached by examining boys and girls separately do not differ from conclusions based on these combined estimates.

16 Negative correlation here means that those with low age of expected mastery on independence training items have higher I.Q. and vice versa.

17 See Schroder and Crawford (1970), pp. 11-12.

independence training item the average age for each achievement level was calculated. The resulting data were examined to see if there were any consistent trends in age expectations as one progressed from under-achievers, through average-, to over-achievers (see figure 4). In all items (except number 2 where there is no change) there is a trend for parents of over-achievers to expect earlier attainment of these demands than parents of under-achievers. The average differences in average age between under-, and over-achiever groups is less than half a year (0.39).

Again, we must conclude that although there is a clear relationship between over-achievement and independence training, the depth of this relationship is so slight as to be of little predictive value.

In Summary: we have found that there is a relationship between independence demands and: (1) I.Q., (2) teachers' ratings, (3) MAT scores, (4) relative achievement. However, the proportion of the variability in each of these measures accounted for by independence items is very small, indicating that the relationship will be of little help in predicting any of these factors.

7. Which Independence Training Items (If Any) Can Be Used As Predictors Of School Achievement (As Measured By MAT, Teachers' Ratings And Relative Achievement)?

To answer this question with respect to MAT scores and teachers' ratings, we examine in detail the correlation coefficients in Table 3. On the basis of statistical considerations[18] it was decided to consider only those coefficients differing from zero by a value of .14 or more as indicating a

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18 There are 72 correlation coefficients in Table 3; there is a fair chance that one or two of these will be reasonably large by chance alone. However, we would expect only one coefficient in 1000 to be greater than .14 (or less than -0.14) on the basis of chance alone. Thus, in a table of 72 correlation coeffic s there is a chance of about one in ten (actually 0.07) that at le one of the coefficients differing from zero by more than .14 will be a result of chance alone. Thus, we can be reasonably confident that there is indeed a relationship in each of the seven marked coefficients in Table 3.

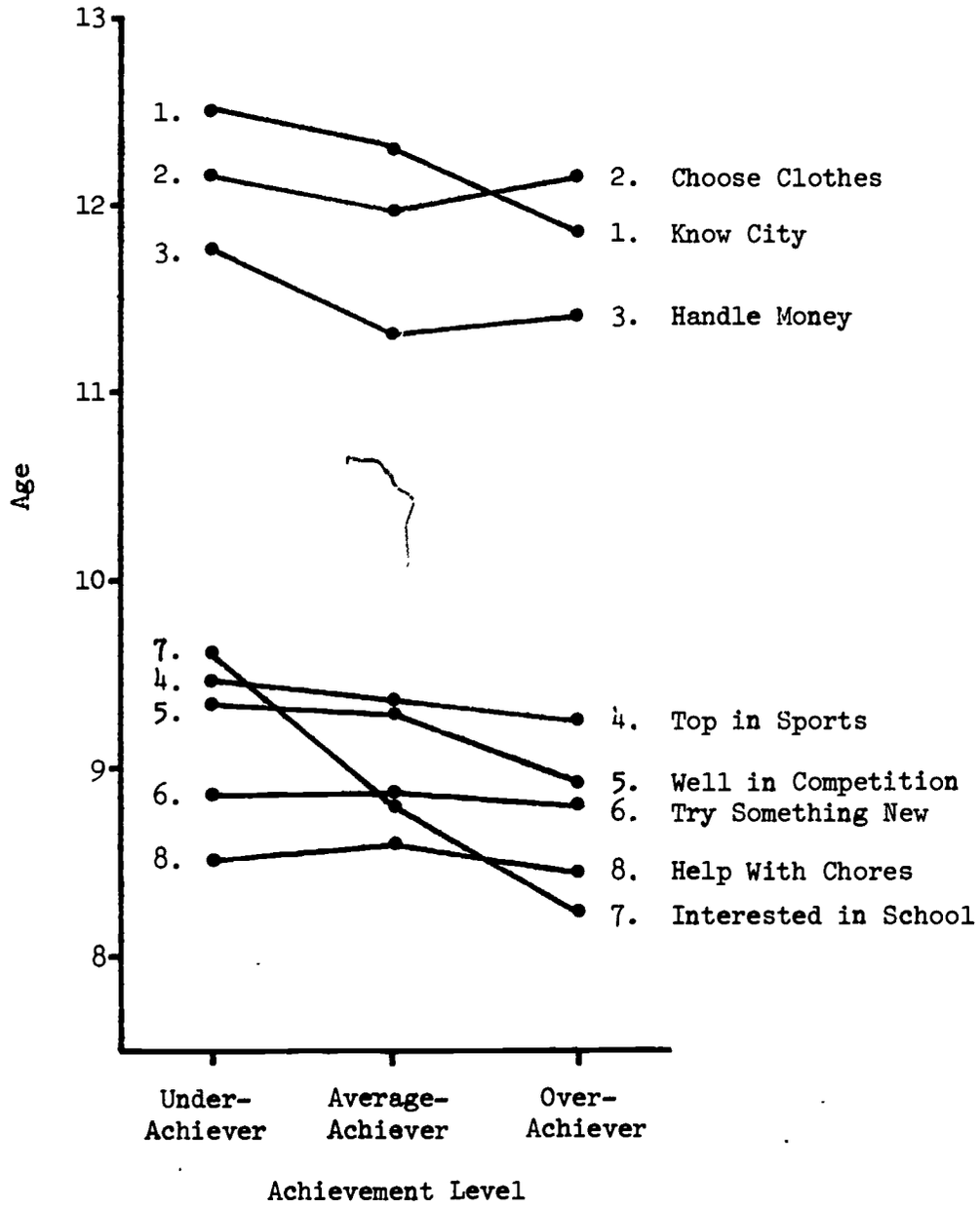

Fig. 4. Relationship of independence training items to relative achievement.

genuine relationship between variables. These coefficients have been marked with an asterisk (*) in the table. It can easily be seen that item 7, "interested in school" is the only reliable overall predictor of teachers' ratings and MAT scores.

Examination of figure 4 reveals that item 7, "interested in school" is also the only independence training item to vary substantially with relative achievement. That is, parents of over-achievers expect their children to "really be interested in how they are doing at school" an average of 1.34 years earlier than do parents of under-achievers.

The picture becomes somewhat more complicated when we examine boys and girls separately. On teachers' ratings it is with boys that the relationship with item 7 is strong[19]; for girls, item 7 is no better as a predictor of teachers' ratings than is any other variable. In other words, teachers give higher ratings to boys whose parents stress early interest in school; but for girls, stress by parents on early interest in school is not related to higher teachers' ratings. Similar results were obtained with respect to relative achievement. The difference in average age on item 7 between under-, and over-achievers is 1.7 years for boys, but only 1.0 years for girls. Perhaps these results are due to the fact that interest in school is acceptable among a girl's peers, so that achievement-oriented behaviour among most girls is independent of parental pressure.

For the MAT verbal scale, item 7 is of some predictive value for both girls and boys; but for the math scale, item 7 is a useful predictor only for girls. That is, parents who stress early interest in school have girls who do well on both verbal and math sections of the MAT; but for boys parental stress on early interest in school is associated only with high

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19 Correlations for boys and girls separately not shown here.

verbal MAT scores. High scores on math MAT for boys are not related to parental stress on early interest in school. Again, if mathematical skills are more acceptable than verbal skills among a boy's peers, achievement in this area may occur independent of parental pressure.

The fact that "interested in school" is the only valid predictor of both MAT scores and teachers' ratings does not mean that it is a good one. It accounts for less than 10 per cent of the variability in each of the teachers' ratings and MAT items. Also the 1.3 years difference between average ages given by parents of over-, and under-achievers is small in comparison to the standard deviation of 2.9 years on this item.

To Summarize: only item 7 "really be interested in how he is doing at school" showed a consistent relationship with MAT scores, teachers' ratings, and relative achievement. Even so this question is of only marginal value as a predictor since it accounts for so little of the variability (less than 10 per cent) in the predicted variables (i.e., MAT, etc.).

C - Job Factors And Personal Qualities[20]

8. What Is The Order Of Importance (Value) Attached By Parents To The Various Job Factors And Personal Qualities?

Mean rankings for each of the three ranking questions are presented in figure 5.[21]

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20 Several methods of analysis of the three ranking questions were tried; these include:
(1) percentage responses of each achievement level, for each rank (sexes separate);
(2) Kendall's tau correlations of rank by achievement level for each job factor or quality;
(3) mean rankings on each achievement level for each job factor or quality.

Each of the above approaches lead to approximately the same conclusions. The mean rankings analysis was chosen for presentation here because it appears to be the most clear and detailed, and because it can be presented in the same format as the independence training data.

21 Conclusions in this section are based on the results of a Duncan's multiple range test (see footnote 9 on page 14).

Job factors are shown in figure 5 (a). It appears that job interest is seen as generally the most important of the job factors examined, and challenge is clearly the least important of the five. Security, advancement and salary are not differentiated and are seen as having only intermediate importance. It is not clear why interest and challenge are so clearly differentiated by the mothers, but it may be that "challenge" connotes "danger" and is consequently shunned by the mothers. If this is true, it would be interesting, in a future study, to compare fathers' rankings of these items with those of the mothers'.

On the first set of personal qualities (figure 5 (b)) mothers clearly rank happiness as most important and "hard working" as the least important of the five. Clustered in the middle are "pleasant, friendly," "intelligent" and "neat, clean," with "neat, clean" ranked slightly less important than the other two.

On the second set of personal qualities (figure 5 (c)) mothers clearly rank health as most important. "Punctual" and "inquisitive, curious" are together ranked lowest, with "inquisitive, curious" perhaps somewhat less important. "Obedient, well-behaved" and "take care of self" are ranked intermediate in importance with "obedient, well-behaved" perhaps somewhat more important.

The fact that health and happiness were ranked first by the mothers is much as expected. Somewhat more interesting is the fact that "inquisitive, curious" and "hard working" were ranked so low, since these qualities (together with intelligence) are probably the most directly related to achievement in school and in the work world. These results may be due in part to the fact that top rated items (i.e. interest, health, happiness) are general terms affecting all aspects of job or life; while bottom rated items (i.e. "challenge," "punctual," etc.) are much more specific items relating only to

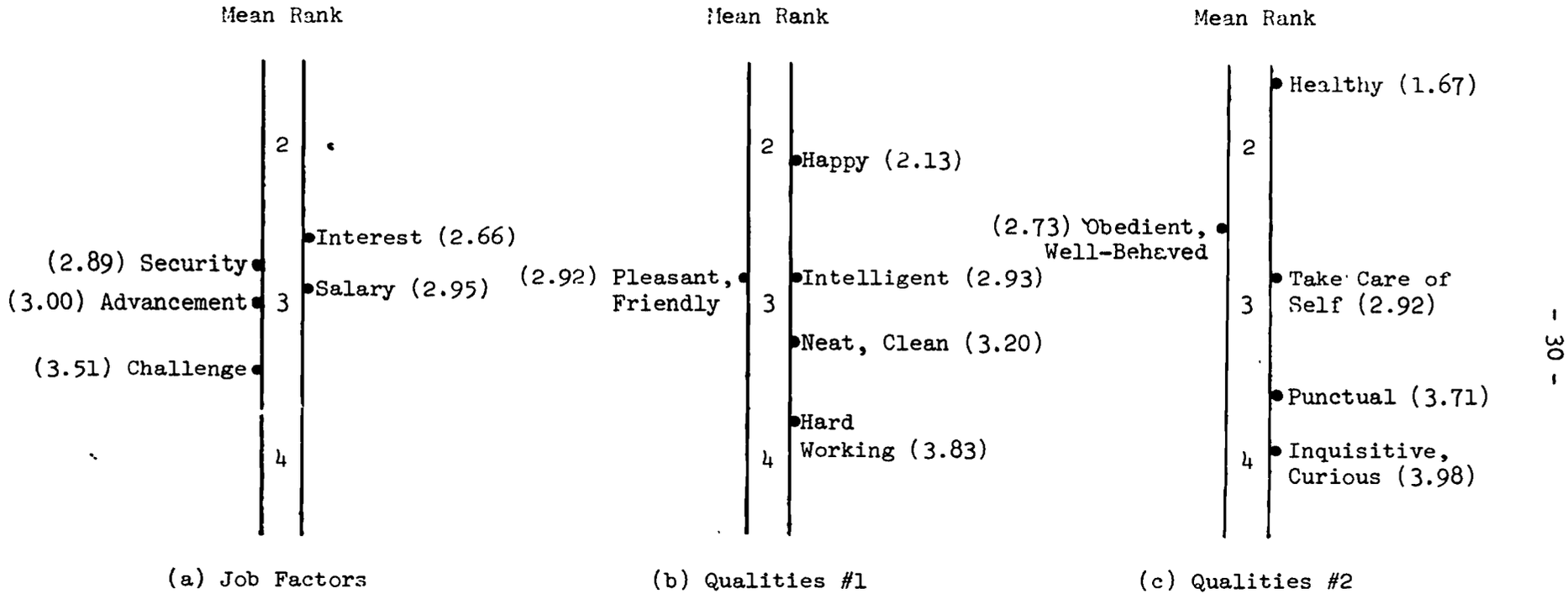

Fig. 5. Mean rankings on the three ranking questions.

a small part of job or private life. Also, the items are clearly not independent. For instance, "neat, clean" is likely seen by parents as important for the child's happiness in his private life in addition to success at work and school. Thus it will be important to consider the meanings of these items to parents in further interpreting the results of these questions.

In Summary: job interest, personal happiness and health are the most important among the factors rated; job challenge along with the personal qualities of "hard working," "punctual" and "inquisitive, curious" are ranked as least important of the items presented.

9. Do Parents Differ In These Rankings For Boys And Girls?

Mean rankings for boys and girls on job factors are shown in figure 6 (a). In no case is the difference between the ranking for boys and for girls large enough for us to conclude the order is different for boys and girls.[22] It does appear that the distinction between interest and security is greater for boys than for girls.

Figure 6 (b) shows mean rankings on the first set of qualities. Clear differences between boys and girls are evident on "neat, clean" and "hard working" items. "Neatness" was rated as relatively more important for girls than for boys, and "hard-workingness" was relatively more important for boys than for girls.

It is apparent that the placing of "hard working" in the position of lowest importance is due almost entirely to the rankings given by the parents of girls; the parents of boys see all of "hard working," "neat, clean" and "pleasant, friendly" as relatively unimportant factors and "hard working" does not stand out so negatively.

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22 Conclusions in this section are based on the results of a Duncan's multiple range test (see footnote 9 on page 14).

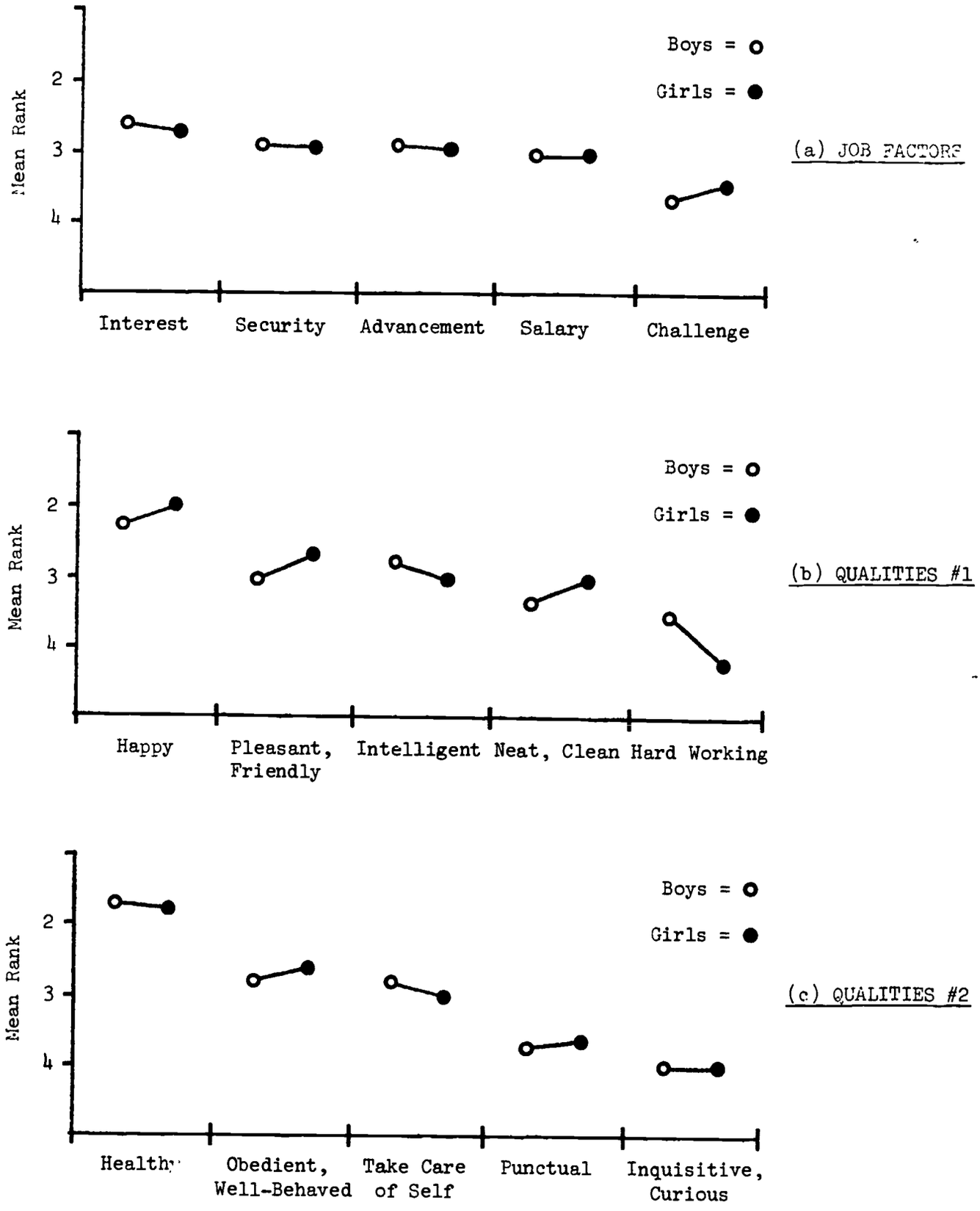

Fig. 6. Mean rankings for boys and girls.

Generally, the differentiation between happiness and "hard working" is considerably greater for girls than for boys.

Figure 6 (c) shows mean rankings on the second set of qualities. For girls we can be precise in ordering these five qualities:

(1) healthy
(2) obedient, well-behaved
(3) take care of self
(4) punctual
(5) inquisitive, curious,

while for boys we cannot clearly distinguish "obedient, well-behaved" from "take care of self" or "punctual" from "inquisitive, curious."

In Summary: the only clear differences between mean rankings for boys and girls occurred in the first set of personal qualities where for boys "hard working" was rated as a relatively more important quality than it was for girls and "neat, clean" was rated relatively less important for boys than for girls.

10. How Do Mothers Of Over-Achievers Differ From Mothers Of Under-Achievers In The Importance Attached To These Job Factors and Personal Qualities?

Mean rankings for over-, average-, and under-achievers on job factors and on both sets of qualities are shown in figure 7. To answer this question we shall examine these graphs to see which items change systematically in relative ranking over the three achievement levels.[23]

The job factor items (figure 7 (a)) show several such relationships with level of achievement. Parents of over-achievers place relatively more importance on interest and challenge of a job and relatively less importance

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23 Conclusions in this section are based on the outcome of a test for linear trend. In this case the trend test compares mean rankings for over-achievers with those for under-achievers to determine if the difference in mean rankings between these two levels could reasonably be expected to be due to chance alone, ($\alpha = .05$).

on salary and advancement than do parents of under-achievers. For under-achievers, job challenge is clearly distinct from the other factors as being least important; for over-achievers, job interest is clearly distinct as being most important.

In the first set of qualities (figure 7 (b)), parents of over-achievers place relatively more importance on hard work and relatively less importance on "neat, clean" than do parents of under-achievers. For under-achievers, "neat, clean" is undifferentiated from "pleasant, friendly" and "intelligent"; while, for over-achievers, "neat, clean" is clearly less important than these other two qualities.

In the second set of personal qualities (figures 7 (c)), parents of over-achievers place relatively more importance in "inquisitive, curious" and relatively less importance in "obedient, well-behaved" than do parents of under-achievers. For parents of under-achievers "obedient, well-behaved" is clearly preferred to "take care of self" while for parents of over-achievers, these qualities are of equal importance. Also, for parents of under-achievers "inquisitive, curious" is clearly given less importance than punctuality, while for parents of over-achievers these items are not differentiated.

In Summary: parents of over-achievers place relatively more importance on the job factors of interest and challenge, and on the personal qualities of "hard working" and "inquisitive, curious" than do parents of under-achievers. Parents of under-achievers place relatively more importance in the job factors of salary and advancement and in the personal qualities of "neat, clean" and "obedient, well-behaved" than do parents of over-achievers.

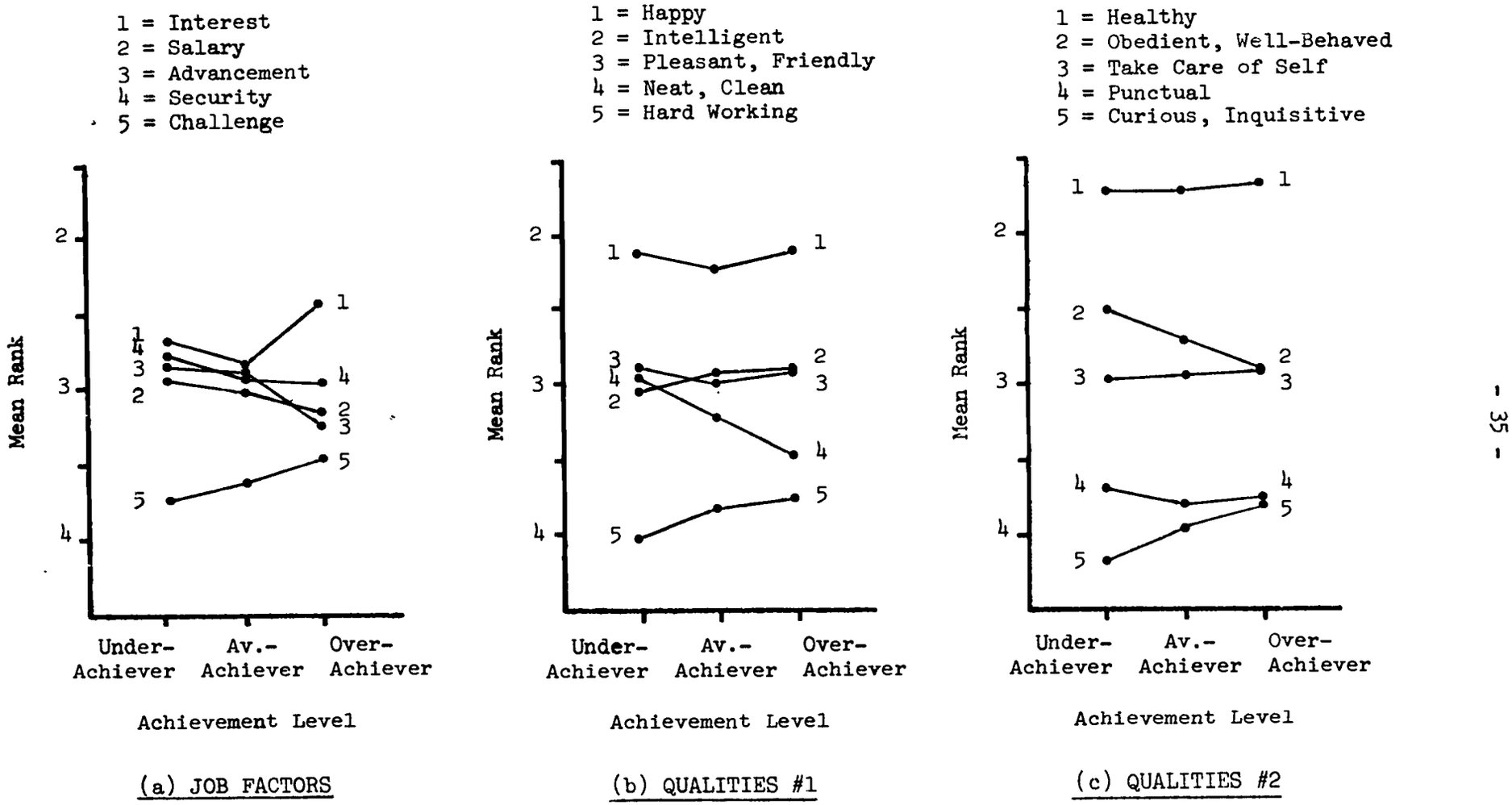

Fig. 7. Mean rankings for three achievement levels.

SUMMARY AND CONCLUSIONS

A detailed summary of the results in answer to each major question asked in this study, can be found in the last paragraph of the discussion under that question in the RESULTS section.

One of the expressed purposes of this study was to compare the relationship of independence training to indices of absolute versus relative achievement. The results for these two measures showed no remarkable differences; independence training items produced essentially the same pattern of results whether related to absolute or relative achievement scores. Thus, on the basis of this study it appears that we can consider together the two bodies of literature, one relating independence training to absolute achievement, the other relating independence training to relative achievement.

In this study we have replicated past findings relating parental expectations for early independence to school achievement. Although this relationship is consistent across almost all measures of achievement and all independence training items, the depth of the relationship is very shallow. The amount of variability in the various achievement measures that can be predicted by the independence items is (in most cases) less than 1 per cent.

The one independence training item which might possibly be useful (5 per cent predictability) is the only one which relates directly to school (i.e., "really be interested in how he is doing at school"). But even this item is reliable for boys only on teachers' ratings and for girls on the MAT.

An internal analysis of the independence training items revealed that parents responded as if the items were measuring two different factors

rather than one. Items belonging to this first factor differed from those of the second factor in a number of ways. The five items of factor one, with one exception, related to the child's individual initiative and self-assertion; they were expected by most parents to have been already successfully accomplished, and girls and boys (with one exception) were said to have accomplished these demands at the same age. In contrast, the three items of the second factor related to the child's purchasing his own goods and services; they were not expected by most parents to have already been accomplished, and boys were expected to accomplish these demands somewhat earlier than girls.

It also appears that different interpretations of a given independence training item may have been made by different parents, leading to the observed wide range of expected ages for accomplishment of the various demands.

Finally, no relationship was found between the independence training items and the measure of socio-economic status; this lack of significance of the socio-economic index as a predictor is consistent with other studies in this series.

In rating job factors, parents (especially those of boys and of over-achievers) rated interest as the most important and parents (especially those of boys and of under-achievers) rated challenge as the least important. With personal qualities, as with job factors, general or pervasive items like health and happiness tended to be rated high in importance, while particular items like punctuality and neatness tended to be rated low.

Parents of over-achievers stressed the importance of hard work, curiosity and job interest and challenge, which one might predict a-priori as being related to school achievement. Parents of under-achievers tend to

stress obedience, neatness, and job salary and advancement, all of which seem intuitively to be less important to school achievement.

Parents of boys showed greater differentiation in responses to the job factors' questions and parents of girls showed greater differentiation in responses to the personal qualities' questions, indicating, perhaps, that job factors are more relevant to parents of boys and that personal qualities are more relevant to parents of girls.

In Conclusion:

1. We have demonstrated clearly that the results, in terms of home parental attitudes and expectations are similar whether one talks about over-, and under-achievement (i.e. relative achievement) or absolute achievement.

2. We have shown that parents of over-achievers do differ from parents of under-achievers in the relative importance they attach to various personal qualities and job factors.

3. We have replicated previous findings by demonstrating a modest relationship between independence training and school achievement.

4. We have identified two subfactors which jointly can be called independence trai ing.

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